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## The BULLETIN



THE NORTH CAROLINA  
AGRICULTURAL AND TECHNICAL  
STATE UNIVERSITY  
Greensboro



VOL. 60, NO. 3

JANUARY, 1969







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JANUARY, 1969

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**THE BULLETIN**  
**of**  
**THE NORTH CAROLINA**  
**AGRICULTURAL AND TECHNICAL STATE UNIVERSITY**  
**Greensboro**

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**(CO-EDUCATIONAL INSTITUTION)**  
**SEVENTY-SECOND ANNUAL**  
**CATALOGUE 1968-69**  
**WITH ANNOUNCEMENTS FOR 1969-70**  
**GREENSBORO, NORTH CAROLINA**

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**THE NORTH CAROLINA  
AGRICULTURAL AND TECHNICAL STATE UNIVERSITY  
Greensboro**

**UNIVERSITY CALENDAR 1968-1969**

**FALL SEMESTER 1968**

September 5-7—Thursday-Saturday	Faculty Institute
September 8—Sunday	Freshman Students Report
September 9-10—Monday-Tuesday	Freshman Orientation
September 11-14—Wednesday-Saturday	Registration
September 16—Monday	Classes Begin
September 23—Monday	Last Day for Adding Classes
October 1—Tuesday	Fall Semester Convocation
November 22—Friday	Last Day to withdraw From a Course
November 18-21—Monday-Thursday	Mid-term Evaluation
November 26—Tuesday	Thanksgiving Holidays Begin at 6:00 p.m.
December 2—Monday	Classes Resume at 7:00 a.m.
December 20—Friday	Christmas Holidays Begin at 10:00 p.m.
January 6, 1969—Monday	Classes Resume at 7:00 a.m.
January 20—Monday	Reading Day
January 21-25—Tuesday-Saturday	Final Examinations

**SPRING SEMESTER 1969**

January 28—Tuesday	New Students Report
January 29-30—Wednesday-Thursday	New Student Orientation
January 31-February 1—Friday-Saturday	Registration
February 3—Monday	Classes Begin
February 10—Monday	Last Day for Adding Courses
March 4—Tuesday	Spring Semester Convocation
April 1—Tuesday	Honors Convocation
April 18—Wednesday	Last Day to Withdraw From a Course
April 2—Wednesday	Easter Holidays Begin at 6:00 p.m.
April 9—Wednesday	Classes Resume at 7:00 a.m.
April 10-15—Thursday-Tuesday	Mid-term Evaluation
May 19-21—Monday-Wednesday	Final Examinations for Seniors
May 26—Monday	Reading Day
May 27-31—Tuesday-Saturday	Final Examinations
June 1—Sunday	Commencement Exercises Begin at 11:00 a.m.

*June 3*



# 1968

JANUARY							APRIL							JULY							OCTOBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
7	8	9	10	11	12	13	7	8	9	10	11	12	13	7	8	9	10	11	12	13	6	7	8	9	10	11	12
14	15	16	17	18	19	20	14	15	16	17	18	19	20	14	15	16	17	18	19	20	13	14	15	16	17	18	19
21	22	23	24	25	26	27	21	22	23	24	25	26	27	21	22	23	24	25	26	27	20	21	22	23	24	25	26
28	29	30	31				28	29	30					28	29	30	31				27	28	29	30	31		

FEBRUARY							MAY							AUGUST							NOVEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3					1	2	3	4	5	6	7	8	9	10	3	4	5	6	7	8	9
11	12	13	14	15	16	17	12	13	14	15	16	17	18	11	12	13	14	15	16	17	10	11	12	13	14	15	16
18	19	20	21	22	23	24	19	20	21	22	23	24	25	18	19	20	21	22	23	24	17	18	19	20	21	22	23
25	26	27	28	29			26	27	28	29	30	31		25	26	27	28	29	30	31	24	25	26	27	28	29	30

MARCH							JUNE							SEPTEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
3	4	5	6	7	8	9	2	3	4	5	6	7	8	1	2	3	4	5	6	7	1	2	3	4	5	6	7
10	11	12	13	14	15	16	9	10	11	12	13	14	15	8	9	10	11	12	13	14	8	9	10	11	12	13	14
17	18	19	20	21	22	23	16	17	18	19	20	21	22	15	16	17	18	19	20	21	15	16	17	18	19	20	21
24	25	26	27	28	29	30	23	24	25	26	27	28	29	22	23	24	25	26	27	28	22	23	24	25	26	27	28
31							30							29	30						29	30	31				

# 1969

JANUARY							APRIL							JULY							OCTOBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
5	6	7	8	9	10	11	6	7	8	9	10	11	12	6	7	8	9	10	11	12	5	6	7	8	9	10	11
12	13	14	15	16	17	18	13	14	15	16	17	18	19	13	14	15	16	17	18	19	12	13	14	15	16	17	18
19	20	21	22	23	24	25	20	21	22	23	24	25	26	20	21	22	23	24	25	26	19	20	21	22	23	24	25
26	27	28	29	30	31		27	28	29	30				27	28	29	30	31			26	27	28	29	30	31	

FEBRUARY							MAY							AUGUST							NOVEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1					1	2	3	3	4	5	6	7	8	9	2	3	4	5	6	7	8
9	10	11	12	13	14	15	11	12	13	14	15	16	17	10	11	12	13	14	15	16	9	10	11	12	13	14	15
16	17	18	19	20	21	22	18	19	20	21	22	23	24	17	18	19	20	21	22	23	16	17	18	19	20	21	22
23	24	25	26	27	28		25	26	27	28	29	30	31	24	25	26	27	28	29	30	23	24	25	26	27	28	29

MARCH							JUNE							SEPTEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
2	3	4	5	6	7	8	8	9	10	11	12	13	14	1	2	3	4	5	6	7	1	2	3	4	5	6	7
9	10	11	12	13	14	15	15	16	17	18	19	20	21	7	8	9	10	11	12	13	7	8	9	10	11	12	13
16	17	18	19	20	21	22	22	23	24	25	26	27	28	14	15	16	17	18	19	20	14	15	16	17	18	19	20
23	24	25	26	27	28	29	29	30						21	22	23	24	25	26	27	21	22	23	24	25	26	27
30	31						31							28	29	30					28	29	30	31			

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R. E. JONES, B.S., M.S., ..	<i>Assistant Director, State Agricultural Extension Service</i>
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RALPH WOODEN, B.S., M.A., Ph.D. ....	<i>Director of Audio Visual Aids Center</i>



GENERAL INFORMATION







# HISTORICAL STATEMENT

The Agricultural and Technical College was established as the "A. and T. College for the Colored Race" by an act of the General Assembly of North Carolina ratified March 9, 1891. The act read in part:

That the leading object of the institution shall be to teach practical Agriculture and the Mechanic Arts and such branches of learning as relate thereto, not excluding academic and classical instruction.

The College began operation during the school year 1890-1891, before the passage of the state law creating it. This curious circumstance arose out of the fact that the Morrill Act passed by Congress in 1890 earmarked the proportionate funds to be allocated in bi-racial school systems to the two races. The A. and M. College for the White Race was established by the State Legislature in 1889 and was ready to receive its share of funds provided by the Morrill Act in the Fall of 1890. Before the college could receive these funds, however, it was necessary to make provisions for Colored students. Accordingly, the Board of Trustees of the A. and M. College in Raleigh was empowered to make temporary arrangements for these students. A plan was worked out with Shaw University in Raleigh where the College operated as an annex to Shaw University during the years 1890-1891, 1891-1892, and 1892-1893.

The law of 1891 also provided that the College would be located in such city or town in the State as would make to the Board of Trustees a suitable proposition that would serve as an inducement for said location. A group of interested citizens in the city of Greensboro donated fourteen acres of land for a site and \$11,000 to aid in constructing buildings. This amount was supplemented by an appropriation of \$2,500 from the General Assembly. The first building was completed in 1893 and the College opened in Greensboro during the fall of that year.

In 1915 the name of the institution was changed to The Agricultural and Technical College of North Carolina by an Act of the State Legislature.

The scope of the college program has been enlarged to take care of new demands. The General Assembly authorized the institution to grant the Master of Science degree in education and certain other fields in 1939. The first Master's degree was awarded in 1941. The School of Nursing was established by an Act of the State Legislature in 1953 and the first class was graduated in 1957.

The General Assembly repealed previous acts describing the purpose of the College in 1957, and re-defined its purpose as follows:

"The primary purpose of the College shall be to teach the Agricultural and Technical Arts and Sciences and such branches of learning as relate thereto; the training of teachers, supervisors, and administrators for the public schools of the State, including the preparation of such teachers, supervisors and administrators for the Master's degree. Such other programs of a professional or occupational nature may be offered as shall be approved by the North Carolina Board of Higher Education, consistent with the appropriations made therefor."

The 1967 General Assembly re-designated the College as a Regional University effective July 1, 1967.

Six presidents have served the institution since it was established. They are as follows: Dr. J. O. Crosby (1892-1896), Dr. James B. Dudley, (1896-1925), Dr. F. D. Bluford, (1925-1955), Dr. Warmoth T. Gibbs, (1956-1960), Dr. Samuel DeWitt Proctor, (1960-1964), and Dr. Lewis C. Dowdy, who was elected president April 10, 1964.

## LOCATION

The North Carolina Agricultural and Technical State University is a state-supported regional university, fully accredited by the Southern Association of Colleges and Schools. A coeducational institution, A&T's unique campus stands only nine blocks from the heart of metropolitan Greensboro, North Carolina—an industrial-educational complex of 142,000 and long noted for its friendliness and hospitality. The University's urban location puts major shopping areas, theaters, churches and transportation depots within walking distance. This location is also an advantage to the many students who obtain part-time employment in the city's business district.

Students at A&T, and those at another university and three colleges take full advantage of Greensboro's outstanding cultural climate. The City has become known for its libraries, museums, art galleries and university and college campuses. Greensboro's central location in the state provides convenient access to other nearby points of interest.

A wide variety of entertainment and recreation is available on the campus and in facilities of the city. The four and one-half million dollar Greensboro Memorial Auditorium-Coliseum attracts outstanding athletic, entertainment and cultural events. Outstanding among these attractions are the annual Central Intercollegiate Athletic Association Basketball Tournament and a schedule of Atlantic Coast Conference and professional basketball games. The city also fields professional teams in baseball and hockey. The city has facilities available for ice skating, bowling, boating and fishing, horseback riding, tennis and golf.

## THE PHYSICAL PLANT

The A. and T. State University campus comprises modern, fire resistant buildings, all thoroughly maintained for the highest level of efficiency, located on land holdings in excess of 781-acres.

Additional facilities procured in recent years include: The Lutheran College Property which contains several buildings; two tracts of land on Dudley Street, purchased from the Redevelopment Commission of Greensboro, and the new Hines Hall Annex, a half million dollar structure, constructed to expand instruction in chemistry.

### UNIVERSITY BUILDINGS

Dudley Memorial Building (Administration)  
 F. D. Bluford Library  
 Harrison Auditorium  
 Charles Moore Gymnasium  
 Coltrane Hall (Headquarters for N. C. Agricultural Extension Service)  
 Memorial Union

### CLASS ROOM AND LABORATORY BUILDINGS

Carver Hall .....School of Agriculture  
 Cherry Hall .....School of Engineering



Hodgin Hall .....	Schools of Education and Arts & Science
Noble Hall .....	School of Nursing
Price Hall .....	Division of Industrial Education and Technology
Benbow Hall .....	Home Economics
Garrett House .....	Home Economics
Hines Hall .....	Chemistry
Sockwell Hall .....	Agricultural Technology
Ward Hall .....	Dairy Manufacturing
Reid Greenhouses	
Graham Hall .....	School of Engineering
Frazier Hall .....	Music-Art
Price Hall Annex .....	Division of Industrial Education & Technology
Campbell Hall .....	ROTC Headquarters
Barnes Hall .....	Biology
Merrick Hall .....	Business and Mathematics

### RESIDENCE HALLS

#### For Women

Holland Hall (150)  
 Morrison Hall (98)  
 Vanstory Hall (70)  
 Curtis Hall (152)  
 Gibbs Hall (200)

#### For Men

Scott Hall (1010)  
 Cooper Hall (400)

### Service Buildings

Murphy Hall ..... Cafeteria  
 Brown Hall ..... Cafeteria, Post Office, Student Financial Aid Office  
 Sebastian Infirmary  
 Power Plant  
 Laundry-Dry Cleaning Plant

### Other Facilities

College Farms—containing modern farm buildings and stocked lakes.  
 Athletic field—including three practice fields for football, quarter mile track, baseball diamond and field house.  
 The Oaks ..... President's residence

## INSTITUTIONAL MEMBERSHIP

North Carolina Agricultural & Technical State University is a fully accredited member of the SOUTHERN ASSOCIATION OF COLLEGES AND SCHOOLS, and holds institutional membership in the following associations:

American Association of Colleges for Teacher Education  
 American Association of Collegiate Registrars and Admission Officers  
 American Association of Land-Grant Colleges and State Universities  
 American College Public Relations Association  
 American Council on Education

American Public Welfare Association  
American Library Association  
Association of American Colleges  
Association of Collegiate Deans and Registrars  
Association of Collegiate Schools of Architecture  
College Language Association  
National Association of Business Teacher Education  
National Association of College and University Food Service  
National Commission on Accrediting  
National Institutional Teacher Placement Association  
National League for Nursing, Council of Member Agencies, Department  
of Baccalaureate and Higher Degree Programs  
North Carolina Association of Colleges and Universities  
North Carolina League for Nursing  
North Carolina Library Association  
Southeastern Library Association

Graduates of the College are eligible for membership in the American Association of University Women.

## **FERDINAND D. BLUFORD LIBRARY**

The F. D. Bluford Library has book capacity for 250,000 volumes and seating facilities for 740 students. Its current holdings include 168,000 volumes and a collection of Federal and State Documents, pamphlets, maps, records, films, filmstrips and prints. The library subscribes to 955 periodicals and newspapers. It provides open shelves for a selection of reference books, bibliographies and periodicals.

The Clinton Taylor Art Gallery and the Teachers Education Materials Center are located on the ground floor of the building. The library is under the supervision of a well-trained staff.

## **THE AUDIO-VISUAL CENTER**

The Audio-Visual Center is a resource pool of materials, services and facilities. It purports to assist in the improvement of instruction by providing means of facilitating the communication of ideas, attitudes, and facts in the teaching-learning process. The Center is located on the first floor of Bluford Library. It includes an office area, film inspection area, storage area, browsing area, preview room, and a room for group showings. The Audio-Visual Center provides the following services for the campus:

Circulation of audio-visual materials  
Procurement of free loan 16mm films from outside sources  
Information on rental films from other sources  
Projectionists for audio-visual showings  
Projection room with equipment  
Previewing facilities  
Assistance in the selection and preparation of materials  
Production of tape recordings, charts, and graphs.

## OFFICE OF PLANNING AND DEVELOPMENT

This office is maintained by the University, not only to assist with the overall institutional development, but also to promote its continual interest among alumni and the national community through annual alumni giving, deferred giving and special fund campaigns. Moreover, the office embraces the following areas of operation: alumni affairs, public information, fund raising, publications, public relations, legislative relations, industrial liaison, sports publicity and special educational projects.

Furthermore, the office aids in conducting the affairs of the A and T University Foundation, Inc., which has been established to assist in soliciting gifts from alumni, foundations, corporations, trustees, students, parents, friends of the University, governmental agencies and philanthropic organizations for such worthy purposes as unrestricted student scholarships, specialized scholarships for students in science, engineering and fine arts, faculty improvement, faculty chairs, research programs, an endowment fund, the art gallery, historical museum and capital funds.

The Office is conveniently located in the Dudley Memorial Building which houses the administrative offices of the University.

## COMPUTER SCIENCE CENTER

The University maintains modern facilities for instruction, research and service in Computer Science. The basic equipment includes an IBM-1620 Computer with auxiliary components.

In addition, the University has a remote processing center using a teletype console as input to an IBM-360 Computer (Model 75) located in the Triangle Universities Computing Center at the Research Triangle in Durham, North Carolina.

## INSTITUTE FOR RESEARCH IN HUMAN RESOURCES

The University has organized an Institute for Research in Human Resources. Its broad purpose is to investigate problems that exist for people who are culturally, economically, educationally or socially disadvantaged. The Institute has been structured to bring together available resources and attributes from the university and the larger community for research, service and study. It allows the social scientists, humanists and the natural scientists to place special emphasis upon achieving new approaches and new solutions to many human resource problems.

## FINANCIAL INFORMATION

### STUDENT LOAN FUND

N. C. A. and T. State University Student Aid Fund was established by the Student Council of 1946-1947 to provide a source of revenue for loans to deserving students. This fund is supported by the contributions from students, faculty members, and campus organizations. Any regular term student, duly registered, is eligible to apply for aid through this fund.

**THE NATIONAL DEFENSE STUDENT LOAN PROGRAM**

A. and T. State University participates in the National Defense Student Loan Program. This program was authorized by Public Law 85-864, the National Defense Education Act of 1958. It provides a loan fund from which undergraduates and graduate students may borrow on reasonable terms for the purpose of completing their higher education. A student must be a citizen of the United States, enrolled as a full-time or half-time undergraduate or graduate student in order to be eligible for a loan. Application forms and additional information may be obtained from the Financial Aid Officer, North Carolina A. & T. State University, Greensboro, North Carolina.

**NORTH CAROLINA RURAL REHABILITATION CORPORATION  
STUDENT LOAN PROGRAM**

Loans under this program are available to needy and worthy North Carolina farm boys and girls who plan to study agriculture or home economics. The loans bear interest at the rate of four percent per annum. Application forms and additional information may be obtained from North Carolina Rural Rehabilitation Corporation, Post Office Box 2403, Raleigh, North Carolina.

**REQUIRED FEES AND CHARGES**

Total semester fees and charges are due and payable in full on or before registration of each semester. Payments shall be mailed in no later than September 1 for the Fall Semester and January 15 for the Spring Semester. Make all remittances payable to A & T State University and address to Cashier's Office, North Carolina A & T State University, Greensboro, North Carolina 27411.

	Students Living Off Campus	Students Living Off Campus But Taking Meals on Campus	Students Living On Campus and Taking Meals on Campus
<b>North Carolina Students:</b>			
Fall and Spring Semester Each .....	\$193.50	\$358.50	\$493.00
<b>Out-of-State Students:</b>			
Fall and Spring Semester Each .....	\$393.00	\$558.00	\$692.50

**DEFERRED PAYMENT PLAN FOR BOARDING OR BOARDING AND LODGING  
STUDENTS ONLY**

(Includes Additional \$3.00 Per Semester Deferred Payment Fee)

	Required Fees and Meals Only		Required Fees and Meals and Lodging	
	N. C. Student	Out-of-State Student	N. C. Student	Out-of-State Student
Payment Due Each Registration ..	\$226.50	\$426.00	\$286.00	\$485.50
Second Payment (Oct. 10/Mar. 10) .....	45.00	45.00	70.00	70.00
Third Payment (Nov. 10/Apr. 10) .....	45.00	45.00	70.00	70.00
Fourth Payment (Dec. 10/May 10) .....	45.00	45.00	70.00	70.00
<b>TOTALS .....</b>	<b>\$361.50</b>	<b>\$561.00</b>	<b>\$496.00</b>	<b>\$695.50</b>

## REGULAR SESSION PART-TIME STUDENT FEE RATES

N. C. Students, Per Semester Hour .....	\$ 16.00
Out-of-State Students, Per Semester Hour .....	\$ 33.00

## SUMMER SCHOOL STUDENT FEE RATES

Tuition (Per Semester Hour) .....	\$ 8.40
Out-of-State Fees (Per Semester Hour) .....	16.60
Registration Fees (Per Semester Hour) .....	.60
Activity Fee (Per Semester Hour) .....	.20
Book Rental Fee (Per Semester Hour) .....	1.50
Health Service Fee (Per Semester Hour) .....	.50
Student Union Fee (Per Semester Hour) .....	1.00
Board Rate (Per Week with Meal Tickets) .....	10.50
Room Rent with Linen Rental (Per Week) .....	7.00

## DETAIL OF FEES, DEPOSITS AND CHARGES

## Required Fees—Per Year:

Tuition, N. C. Student .....	\$201.00
Tuition, Out-of-State Student .....	600.00
Registration Fees .....	15.00
Activity Fees .....	54.00
Book Rental Fees .....	38.00
Health Service Fee .....	35.00
Student Union Fee .....	44.00

## Board and Room Rates:

Board .....	\$330.00
Room Rent .....	250.00
Linen Rental .....	16.00
Linen Deposit (Refundable) .....	3.00

## Incidental Fees and Deposits:

Admission Application Deposit (No refund—no credit on account) .....	\$ 5.00
Admission Reservation Deposit (No refund—credit applied to account) .....	15.00
Ambulance Service .....	20.00
Day Student Infirmary Meal Charges .....	.50
Deferred Payment Fee (Per Semester) .....	3.00
Dormitory Key Deposit (Refundable) .....	1.00
Driver Education Laboratory Fee Per Course Regular Session or Summer School .....	10.00
Graduation Fees—Regalia Renting and Diploma:	
Trades .....	10.00
Bachelors .....	15.00
Masters .....	25.00
I. D. Card Replacement .....	3.00
Late Registration Fee .....	5.00
Masters Thesis Binding Fee—Three Copies .....	20.00
Practice Teaching Fee (Other than Vocational Agriculture) .....	35.00
ROTC Uniform Deposit .....	10.00
Engineering Inspection Tour Fee .....	25.00
Special Examination Fees Varies—\$5 to \$15 (Average) .....	10.00
Transcript of Record (after first one) .....	1.00

## AUDITORS

Auditing of courses is open to any person, without credit, upon the payment of all regular applicable fees. Currently enrolled full-time students may audit courses without additional charge. An auditor is not required to participate in class discussions, prepare assignments or take examinations.

## REFUNDS

Refunds upon official withdrawal of a student will be made less any amounts due the University as follows:

1. Lodging: Days room not occupied at the rate of \$.95 per day from time of official withdrawal. (No refund on linen rental.)
2. Board: Refund computed at the rate of \$1.20 per day from date of official withdrawal.
3. Tuition: Registration, Health, Book Rental, Student Union and Activity Fees:
  - 90 percent when withdrawal is within one week of registration date.
  - 80 percent when withdrawal is within two weeks of registration date.



75 percent when withdrawal is within three weeks of registration date.  
 60 percent when withdrawal is within four weeks of registration date.  
 45 percent when withdrawal is within five weeks of registration date.  
 35 percent when withdrawal is within six weeks of registration date.  
 20 percent when withdrawal is within seven weeks of registration date.  
 15 percent when withdrawal is within eight weeks of registration date.  
 None when withdrawal is after eight weeks.

### SPECIAL NOTICES AND EXPLANATIONS

The University reserves the right to increase or decrease all fees and charges as well as add or delete items of expense without advance notice as circumstances, in the judgment of the Administration, may require.

Room and board rates are based on the average cost of operations for the entire school year which includes provision for services only during the scheduled operational days. Allowances have, therefore, been made for holidays when the facilities are closed.

With the exception of special cases in which permission has been obtained from the Dean of Students, students from outside the city of Greensboro are required to reside in the University dormitories and take board in the University cafeterias.

Student's property in dormitories and other University buildings is at the sole risk of the owner and the University is not responsible for loss or theft of or damage to such property arising from any cause.

Students are required to pay for any loss of or damage to University property at replacement cost due to abuse, negligence or malicious action, in addition to being subject to disciplinary action.

Book rental system operation: Books are issued only for courses listed on the students approved schedule. Reference books, workbooks and supplies are not provided. Proof of official class changes must be presented upon reissue request for other books together with the return of texts issued for courses dropped. All rental books must be returned to the Bookstore on or before the last day of official scheduled examinations to establish eligibility for the continued rental of books for a succeeding semester. Students failing to return books within two days following the close of the semester of issue will be charged the full replacement cost of each book not returned. Students withdrawing during a semester must return all rental books on the day of official withdrawal. Provision for rental text purchases can be made directly at the Bookstore.

Personal spending money should be sent directly to and made payable to the student in the form of money orders or certified checks. The University cannot cash personal checks for students in any amount.

Diplomas and transcripts of records are withheld until the student has paid in full all fees and charges due the University. Further, a student in debt to the University in any amount will not be admitted to final examinations in any course, nor will he be permitted to register for any subsequent semester until his obligations are paid. Failure to make scheduled payments when due will cause the student to be dropped from school for non-payment of fees.

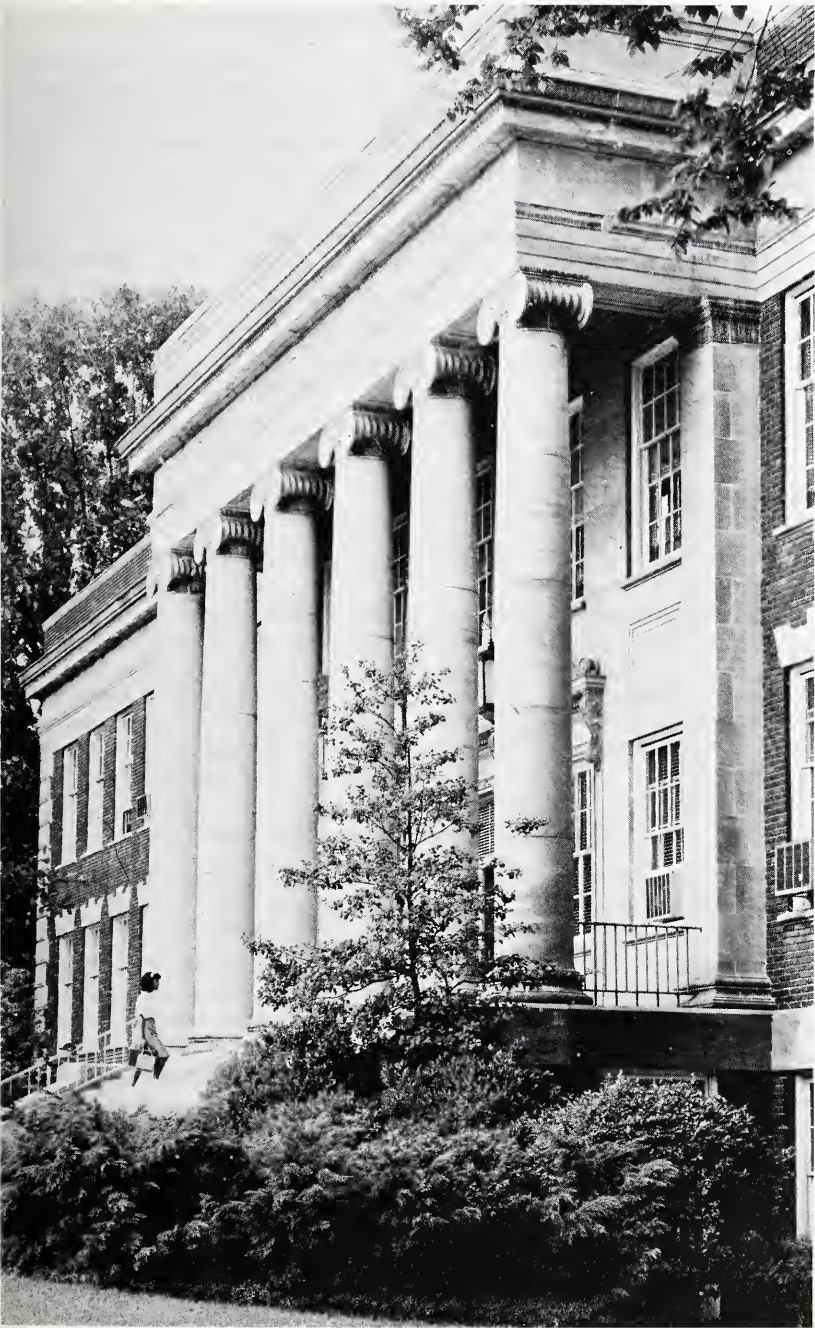
### \*SPECIAL NOTICE TO VETERANS

Public Law 89-358 differs from the law which provided educational benefits to veterans of World War II. One difference is the fact that under the law, the Veteran Administration pays no money to the school for veterans training. All money is paid directly to the veteran in the form of a monthly subsistence allowance.

The veteran, therefore, is responsible for the meeting of all his expenses. Usually two or three months elapse before the veteran receives his first check, so the veteran should be prepared to meet his expenses for the first three months. It is advisable to have, in addition to the money for regular University fees, enough to purchase supplies and incidentals.

\* This does not apply to disabled Veterans.

STUDENT LIFE







# **STUDENT LIFE**

## **STUDENT PERSONNEL SERVICES**

The board objective of the program of Student Personnel Services is to aid the student in developing the attitudes, understandings, insights and the skills which will enable him to express himself as a socially competent person. The program places special emphasis on campus relationships and experiences which complement formal instruction.

More specifically the program of Student Personnel Services is conceived as a continuing exercise of identifying and remedying the daily life problems of the student. Accordingly, very definite efforts are made:

1. To help the student to become better acquainted with himself and the various problems confronting him.
2. To help the student to develop the ability to make satisfactory choices and adjustments.
3. To aid the student in making desirable adjustments in group relationships.
4. To provide cultural and social experiences which will help the student to develop an appreciation for the best in his culture.
5. To promote the physical, mental, moral and spiritual development of the student.

A number of college officials, faculty and staff members are responsible for various phases of the program of Student Personnel Services. These include the Dean of Student Affairs, the Dean of Men, the Dean of Women, the Director of Counseling and Testing Services, Food Services, Religious Activities, Housing, Health Services, the Director of Placement Services, University Union and the Advisor to Foreign Students, faculty advisors and other individuals and agencies.

## **GUIDANCE AND COUNSELING SERVICES**

Provision is made for counseling, testing, and guiding all students through the Counseling and Testing Office. It is located on the ground floor of Dudley Building.

The Office is staffed with trained counselors who are prepared to deal with educational and vocational problems, problems of social adjustment and minor personal problems of the student. The staff is trained in both group and individual testing covering the areas of intelligence, aptitude, personality, interest, and achievement.

The Counseling and Testing Office conducts a testing program for all freshmen. The results of this program are used to assist freshmen in the planning of their educational and vocational careers. The Office conducts other testing programs that are required or desired by departments of the University, also. In addition to these duties, the Office of Counseling and Testing cooperates with the Director of Placement in the Placement of graduates.

## HEALTH SERVICES

The University maintains an Infirmary in which it conducts a Health Service Program for students. The purposes of the health programs are to safe-guard the health of the students, to promote health habits among them, and to protect and improve the health environment of the University community.

The Health Service Center maintains a staff of doctors, dentists, and nurses who are qualified to give professional attention to the health problems of students. The basic components of the health service program are as follows:

1. Medical Services:

The University maintains a Director of the Health Services who is the University Physician. The University Physician is in attendance in the infirmary daily—morning and evening—and is “on call” for any emergency situations.

2. Dental Services:

A dentist is in attendance weekly—Tuesday mornings and Thursday afternoons.

3. Nursing Services:

Registered nurses, under the direction of a head nurse, are in attendance daily on a twenty-four hour basis.

4. Follow-up and Consultation Services:

Follow-up services are given, and referrals to specialists are made upon recommendation of the University Physician.

5. Physical Examinations:

- a. Athletes, nursing students, advanced ROTC cadets and other special groups of students are given complete physical examinations at the Student Health Center each semester or whenever necessary.

- b. All freshmen and transfer students are required to secure a complete physical examination, a blood test and a chest X-ray and send the examination reports to the Director of Health Services before they are admitted to the college. The blood test and chest X-ray reports must be secured within 60 days prior to the date of enrollment. Follow-up examinations are made at the Health Center when necessary.

## HOUSING

The residence halls provide opportunities for personal, social, and intellectual companionship as well as experiences in group living. Each Residence Hall is organized and it conducts programs for the development of the student.

Housing facilities for women are provided in Curtis, Gibbs, Holland, Morrison, Vanstory and East Campus. Men are housed in Cooper, Scott and on east campus also.

Rooms are furnished with twin beds, dressers, study tables, and straight chairs. Each student who has been approved for living in one of the residence halls should bring his blankets. Bed linen will be furnished and is included in lodging fees.

All students, except those who are Greensboro residents or those who commute daily from nearby communities, are required to live in one of the Residence Halls as long as space is available, unless given permission to live elsewhere by the Dean of Student Affairs. The University reserves the right to approve all off-campus housing.

Students unable to secure on-campus housing may contact the Office of the Director of Housing for assistance in locating university approved off-campus housing. (All students are required to file a completed Housing Clearance and Information Card with the Director of Housing and receive a Housing Clearance Certificate before attempting to register.)

### **FOOD SERVICES**

The University provides food service for students at a reasonable cost. Two well equipped cafeterias are operated at convenient locations on the campus. They include Murphy Hall, located on the main campus and Brown Hall, located on the corner of Laurel and Bluford Streets. A snack bar is located in the Memorial Union Building.

Students who live in the residence halls are required to eat in the cafeterias. Students who live in the city may purchase meals also.

### **PLACEMENT SERVICES**

The Placement Center is a centralized operation and is responsible for placement activity for all schools, divisions and departments of the University. It is located in Room 201, Dudley Building and provides services to all seniors, graduate students as well as other students seeking employment. The Center offers a continuing service to graduating students and Alumni.

Placement services to seniors and graduate students include individual and group conferences, career counseling, arranging interviews between interested students and company representatives on campus. It also provides information to students concerning summer employment and part-time employment. There is no charge to students, Alumni, or employers for this service.

### **VETERANS AFFAIRS AND SERVICES**

An information center and clearinghouse services are provided for Veterans and War Orphans who are admitted and who plan to receive money from the Veterans Administration.

The following are listed for their information and guidance:

1. Report to the Veterans Office as soon as you arrive.
2. Bring any communication you have from the Veterans Administration

3. Veterans who are enrolling for the first time should bring their separation papers with them.
4. Be prepared to pay all bills and expenses for the first three (3) months.
5. The Veterans Administration requires fourteen hours for full-time student benefits.
6. The Veterans Administration pays no money to the University for Veterans training. All money is paid directly to the Veteran; therefore each veteran is responsible for meeting all of his financial obligations.

### **THE MEMORIAL UNION**

The A. and T. University Memorial Union, dedicated and opened during the Spring Semester, 1966-67, is the "Community Center", serving diverse needs. It embraces a great variety of facilities and it performs a multiplicity of functions. It is a lounge, reading room, student organizations and activities headquarters, workshop, art gallery, theatre, music room, forum, games room, dance and party center, office building, outing and recreation center, cultural center, ticket bureau bookstore, conference headquarters, dining room and snack bar, information center, barber shop, public relations agency, refuge for meditation, guest room and meeting room. The physical proximity it provides promotes the sense of community among students, faculty, alumni and publics of the University. The Union facilitates a positive recreational and cultural mission.

### **STUDENT ORGANIZATIONS AND ACTIVITIES**

The University provides a well-balanced program of activities for moral, spiritual, cultural and physical development of the students. Religious, cultural, social and recreational activities are sponsored by various committees, departments, and organizations of the university. Outstanding artists, lecturers and dramatic productions are brought to the campus also.

#### **Student Government Association**

The Student Government Association, the key student organization, shares with the administration in planning and regulating student affairs. It recommends student representatives to serve on university committees, stimulates student participation in campus life and helps to make decisions which affect the welfare of the students and the university community.

#### **Men's Council Group**

The Men's Council Group is an organization created for the involvement of all male students in all phases of campus living, especially related to men and to create an atmosphere for self-governing activities. The organization is self-supporting and relies on its membership dues for program promotion. Each male student is automatically a member upon his acceptance for registration.

### **The Women's Council**

The is the organization of the Women Students designed to promote cultural, social, recreational and educational activities for women; to recommend policies and adjustments pertaining to affairs of women students at North Carolina Agricultural and Technical State University; to aid in developing competent leadership; and to encourage good scholarship and personal development.

### **Student Publications**

The REGISTER, a weekly news publication of the student body, endeavors to keep students informed concerning the activities of university and it provides an opportunity for the expression of student ideas and opinions.

The *Ayantee* is the university yearbook.

### **Radio Station WANT**

The purpose of Radio Station WANT is to provide another medium for expression through effective, informative, persuasive and entertaining oral communication, to provide programs and supplemental educational instruction to serve the cultural and academic needs of the university community, and to provide opportunities for training and experience in production and engineering.

### **The Athletic Program**

*Varsity Athletics*—The intercollegiate athletic program is under the supervision and direction of the Athletic Director and the Athletic Committee. The committee includes faculty, alumni and students. The sports included in the program are football, basketball, baseball, track and swimming. The university is a member of the Central Intercollegiate Athletic Association, the National Association of Intercollegiate Athletics, and the National Collegiate Athletic Association.

The varsity letter is awarded to members of the football, baseball, basketball, track and swimming teams for outstanding performance and active participation.

*The Lettermen's Club*—The purpose of the Lettermen's Club is to bring about a union between the athletes and to promote the ideals of leadership, sportsmanship, and fair play. Membership in the organization is limited to varsity lettermen of the university.

*Intramural Athletics*—A program of intramural athletic activities is conducted throughout the school year. Schedules and tournaments are arranged, and equipment is made available by league managers and physical education majors. All students are encouraged to participate in intramural activities.

*The Women's Athletic Association*—The Women's Athletic Association is a member organization of the Women's Sports Day Association. It is open to all women students who desire to participate in competitive and leisure



time athletic activities, such as hockey, soccer, softball, basketball, volley ball, badminton, and archery. Members of the association are selected to engage in competitive activity and fellowship with women students of other colleges during semi-annual Sports Day meetings. Appropriate awards are given for outstanding performance and active participation.

### **Religious Organizations and Activities**

The university is a non-departmental state supported institution, but opportunities are provided for students to recognize the resources of religion and to develop a desirable philosophy of life. The religious organizations and activities of the university include the Chapel, Sunday School, YMCA, YWCA, Baptist Student Union, Wesley Foundation, Canterbury Club, Newman Club, Westminster Fellowship, and the Southern Christian Fellowship.

## **HONOR SOCIETIES**

### **Alpha Kappa Mu Honor Society**

The Alpha Kappa Mu Honor Society is a national scholarship organization with local chapters established in accredited colleges. The local chapter is known as Gamma Tau Chapter of the Alpha Kappa Mu Honor Society. The qualifications for Gamma Tau are the same as those of the national organization. They are as follows:

1. Candidates must have completed ninety semester hours, with an average of not less than 3.30. These must include all required courses listed for freshmen and sophomores.
2. Membership is open to all students of the university, provided that they meet scholastic requirements; in the case of transfer students, there must have been a chapter of Alpha Kappa Mu or some other honor society with equivalent standards, rules and regulations at the institution from which they transferred.
3. Candidates must have a clear record in deportment.

The Society encourages participation in at least one extra-curricular activity. All students recommended by the Registrar and the Dean of Student Affairs as having the qualifications listed above are eligible for membership.

The Sophist Society is composed of regular university students of freshmen, sophomore, and junior classification who maintain a minimum average of 3.30. The purpose of this organization is to encourage high scholarship among these students. Members who qualify for membership in the Sophist Society may join Alpha Kappa Mu Honor Society during their junior or senior year.

### **Sigma Rho Sigma Recognition Society**

Sigma Rho Sigma Recognition Society is a national honor society for social science majors. Its membership is open to graduates and undergraduates. Chapters of the Society are located in the various colleges

represented in the membership of the Association of Social Science Teachers in Negro Colleges. The purposes of the Society are the following:

1. To encourage study, promote research, and to recognize achievement in the field of social science.
2. To promote the cooperation of students in the field of human relations.
3. To promote professional growth and development among the members.

To be eligible, one must be a junior concentrating in social sciences, must have an average of 3.00, and must have a minimum credit of twenty-five hours in the social sciences.

### **Beta Kappa Chi**

The purpose of this society shall be to encourage and advance scientific education through the following: (a) original investigation, (b) the dissemination of scientific knowledge, and (c) the stimulation of high scholarship in pure and applied science.

### **Kappa Pi**

Kappa Pi, National Honorary Art Fraternity was installed at the university in 1962. Membership is opened to art majors of high scholastic standing. Its purposes are:

- To promote art interest among university students.
- To bring art departments of various schools closer together.
- To stimulate higher scholarship.
- To recognize potential professional ability.

### **Kappa Delta Pi**

Kappa Delta Pi is an honor society in education which admits both men and women to membership. The Society is international and is composed of laureate, honorary, institutional, and alumni chapters. Membership is open to undergraduate students, graduate students, and faculty members. Undergraduates must be of junior classification. They are required to have an average above the upper quartile of the institution and at least nine semester hours of course work in education. Candidates must possess desirable personal habits and leadership attributes. Membership is by initiation only.

### **Pi Delta Phi, National French Honor Society**

The Pi Delta Phi Honor Society is open to all French majors and minors. Its purpose is to stimulate greater interest in French language and culture. The Society elects those students who have displayed a keen interest in the language and culture and have demonstrated their admiration for French.

Candidates must have completed twenty or more hours of French, including phonetics. They must have a cumulative average of 2.50 and an average of 3.00 in all French courses.

The local chapter is known as Beta Lambda, and is affiliated nationally.

### **Omicron Delta Epsilon**

Omicron Delta Epsilon is a National Honor Society for majors and minors in Economics. Alpha Chapter of North Carolina was established at A. and T. State University in 1965.

To qualify for membership the student must have a 3.00 grade point or better average in the area of economics, an overall average of "B", and at least 12 hours in Economics.

The purposes are:

1. To encourage a high caliber of performance in the major field while maintaining a good overall average;
2. To stimulate the student to do independent research with the view toward publication in the official journal;
3. To expose members to the best economists through the biennial meetings held at the same time and place as the American Economic Association.

### **Pi Omega Pi, National Business Education Fraternity**

The local chapter of Pi Omega Pi is known as Gamma Phi and is open to students who have entered upon a teacher-training program in either typing and shorthand and in general business and bookkeeping. They must have reached the second semester of the sophomore year with twenty-four semester hours in business and in education subjects, with a superior rating (3.00); and they must have at least a medium rating (2.50) in all other subjects. The purpose of Pi Omega Pi are stated below:

1. To create, encourage, promote, and extend interest in scholarship.
2. To aid in activities for civic betterment in schools.
3. To encourage and foster high ethical standards in business and professional life.
4. To teach the ideal of service as the basis of all worthy enterprise.

### **Lambda Iota Tau**

The purpose of this National Honor Society is the recognition and promotion of excellence in the study of literature. Beta Theta Chapter is represented here.

### **Fraternities and Sororities**

The following national fraternities have chapters at the University:

Alpha Phi Alpha  
Kappa Alpha Psi  
Phi Beta Sigma  
Omega Psi Phi

The following national sororities have chapters at the University:

Alpha Kappa Alpha  
Delta Sigma Theta  
Zeta Phi Beta



### **Pan-Hellenic Council**

The Pan-Hellenic Council is a federation of fraternities and sororities on the campus. Its membership is comprised of elected representatives from Greek-letter organizations. The principal purpose of the Council is to assist in the regulation and conduct of affairs and activities of fraternities and sororities and to promote joint action for maintenance high standards in Greek life on the University campus.

### **Alpha Phi Omega, National Service Fraternity (Kappa Psi Chapter)**

This Fraternity proposes to assemble college men in the fellowship of the Scout Oath and Law, to develop Leadership, to promote Friendship, to provide Service to Humanity, and to further the freedom that is our national, educational and intellectual heritage.

### **Gamma Sigma Sigma Sorority**

This Sorority proposes to make available to A. and T. State University women an organization which is dedicated to the development of a wholesome personality and the achievement of community improvement through service to humanity.

### **University 4-H Club**

The Collegiate 4-H Club is composed of students who have had previous experiences as 4-H Club members in high school. An informal meeting of a business and social nature is held monthly. Honorary members may be elected to the club from time to time.

### **The Collegiate FFA Club**

The Collegiate Chapter of the New Farmers of America is composed of agricultural students who are former FFA members or who are trainees enrolled in the teacher-training department of the School of Agriculture. The purpose of the collegiate chapter is to give training and experience to students who will later become teachers of vocational agriculture. Honorary members may be elected to the collegiate chapter of the New Farmers of America.

### **The Agricultural Association**

The Agricultural Association is composed of agricultural students. It meets twice monthly for business and social purposes. Honorary members may be elected to the association from time to time.

### **Phi Beta Lambda**

The purpose of Phi Beta Lambda is to strengthen confidence in students and enable them to compete honorably with their associates; to improve scholarship; to develop qualities that will enable students to participate in individual and group projects of a business nature; to train business students for employment in industrial and business jobs.

### Kappa Epsilon Society

The Kappa Epsilon Society is an organization whose purpose is to stimulate interest in home economics, encourage high attainment in scholarship, promote satisfying family relationships, and provide opportunities for awareness of current trends in home economics.

Membership is open to students majoring in home economics.

### The University Bands

The several university bands occupy an important place in the life of the institution. The bands are complete with full instrumentation and equipment for the many varied activities of marching and concert organizations. Expert instruction in all band instruments is given by a staff of trained bandmasters. The organization of the Bands is as follows:

1. *Senior Band*—The 100-piece marching group for the many athletic events that take place in the fall. This is open to those students who have four or more years of experience on a band instrument.
2. The 80-piece symphony concert group is open only to those qualified students who successfully audition for entrance.

### Foreign Language Clubs

*Le Cercle Francais* and *El Club deEspagnol*, and *Der Deutschverein* meet once a month during the academic year.

### The Fortnightly Club

The Fortnightly Club offers its members an opportunity to discuss some of the literary works which have influenced the intellectuals, spiritual, and cultural development of Western Civilization. Interested students will be encouraged to present their creative endeavors for discussion and evaluation.

### The Debating Society

The Kappa Phi Forensic Society, better known as the Debating Society, is designed to stimulate interest in public speaking and debate. It is composed of university students who have distinguished themselves in public performances in these fields. The Society awards a certificate of merit to any graduating senior who has participated in non-varsity debates or who has otherwise rendered meritorious service to the Kappa Phi Kappa Forensic Society for at least two years.

### The Richard B. Harrison Players

The drama society of the university offers its members experience in writing, staging, and directing plays as well as experience in acting. The opportunity is advantageous not only to those who are interested in the theatre but also to those who, at some time in the future, may be asked to direct a play.

### **The Stylus**

The Stylus, an organization composed of students interested in creative writing, has as its primary purpose the opening of new and wider avenues to the student who wishes to share his creative experience with others.

### **Choral Organizations**

The University Choir, the Men's Glee Club, the Women's Glee Club, and the Concert Choir have won for themselves an enviable reputation for the genuine artistry of their work. These organizations, open to all qualified students, offer extra-curricular activity which is at once instructive and enjoyable.

### **The American Society of Tool and Manufacturing Engineers**

Membership in the American Society of Tool and Manufacturing Engineers, Student Chapter No. 44 is open to students in mechanical engineering, mechanical technology, and related fields. Its purpose is to stimulate interest and to advance scientific knowledge in all phases of engineering related to manufacturing and the means and methods of applying such knowledge in practice and education.

Chapter programs are stimulated through close liaison with the Northern Piedmont Chapter and Education Director of ASTME.

Participation in the chapter activities offers outstanding opportunity and challenge for professional development.

### **The P.E.M. Club**

The P.E.M. Club is an organization to promote professional growth and to encourage fellowship among physical education major and minor students. Membership is open to all students who have successfully completed preliminary requirements and have been accepted as majors or minors in the Department of Health and Physical Education.

### **The Dance Group**

The Modern Dance Club presents an opportunity for students to learn and create various types of dances. Members of the group participate in local and regional programs annually. This organization is open to all interested students. Dance Club members are eligible for intramural awards.

### **The Student Nurse Organization**

The Student Nurse Organization is called the TELOCA, (TEnder-LOving CAre), and functions in conjunction with the North Carolina Student Nurses Association. Its objectives are as follows:

1. To assist the student to grow as a member of a democratic society.
2. To serve as a channel of communication between student nurses and faculty members.
3. To plan social and professional activities for the students.

4. To cooperate with the State Student Nurse Association of North Carolina and the American Nurses' Association in working for the professional and educational advancement of nursing.

#### **Art Circle**

The Art Circle is a student professional organization for those who are majoring or minoring in the Fine Arts. Its purpose is the development of further interest in the visual arts through study and application.

#### **University Usher Board**

The University Usher Board is composed of students. They serve at religious services and on special occasions such as Founder's Day, Christmas, and Easter Programs, Baccalaureate and Commencement Exercises.

#### **ARMY ROTC AND AIR ROTC CADET WELFARE COUNCILS**

The Army ROTC Air ROTC Cadet Welfare Councils are organizations composed of all students enrolled in the Army and Air ROTC program. The purpose of these organizations is to promote a spirit of cooperation among cadets and to promote civic activities in the interest of the university and the ROTC. Annual dues are \$4.00 payable upon initial registration for the school year.

#### **Pershing Rifles**

An expert drill team of ROTC cadet volunteers from the freshman and sophomore classes comprises the Pershing Rifles. It improves the coordination and precision drill ability of its members. The team performs at football games and gives other public exhibitions. In addition it functions for visiting dignitaries and provides an advertising media for A. and T. State University. The Pershing Rifles Drill Team reflects the high standard and Esprit de Corps of the A. and T. State University Army ROTC.

#### **A&T State University Rifle Team**

The A. and T. State University rifle team consists of Army ROTC cadets and other interested students. This is an organization to teach members proper firing techniques for record firing with the .22 caliber rifle. This team represents the university in competition with other ROTC units throughout the southeast and several trips are planned each year to nearby schools. It operates under the auspices of the central Inter-collegiate Athletic Association. An Army ROTC rifle team is maintained for competition within the Army ROTC program.

#### **ROTC Band**

Membership is confined to freshman and sophomore cadets who play band instruments. The Band plays for drill periods and ceremonies.

#### **National Society of Scabbard and Blade**

National Society of Scabbard and Blade: Company B, 10th Regiment of the National Society of Scabbard and Blade is a professional military fraternity with membership restricted to cadet officers. The fraternity has

the mission of developing unity and Esprit de Corps within the cadet organization. The Scabbard and Blade Society assists the college and Department of Military Science in many activities.

### **A&T State University Counterinsurgency Unit "Bushmasters"**

A volunteer unit of the Army ROTC designed to develop in the ROTC student an awareness of the diverse factors to counterinsurgency and counter guerrilla operations. Included is training in hand-to-hand combat and reappelling. The second phase covers such subjects as the law of land warfare, psychological aspects of counterinsurgency, guerrilla communications, developing guerrilla operations and training, cross country navigation under adverse weather conditions; and the techniques of raids, ambushes and defensive security measures against guerrilla type operations.

### **ROTC Officer's Club**

The cadet officers' club provides cadets with an opportunity to demonstrate organizational leadership ability and to promote social and cultural activities. Each advanced cadet is automatically a member of the club. The cadet officer's annual formal ROTC Banquet is one of the highlights of the university social season. This club is composed of both the Army and Air Force ROTC.

### **Arnold Air Society**

The Arnold Air Society (AAS) is a private, professional, honorary organization of Air Force ROTC cadets, an affiliate of the Air Force Association (AFA), and a cadet controlled independent entity. The purpose of this organization is to provide a greater opportunity for cadets to become aware of and associated with Air Force life and functions, to provide valuable services to the AFROTC detachment through sponsorship of such corp activities as the corp newspaper, drill competition, rifle matches, high school visits, etc., and to provide a social outlet for the members of the Society.

### **Angel Flight**

The Angel Flight is a national organization of female students sponsored by the AAS. The students are also associate members of the Arnold Air Society and of the Air Force Association. One of 80 Angel Flights located on campuses across the nation, it has full support of the United States Air Force. Its members are selected from sororities and independent groups. Primarily a service organization, the Angel Flight co-sponsors many of the AAS activities. As the flight continues to expand in size and projects it remains one of the most unique college women's organizations in the nation. The "Celestial Beings" of the Angel Flight promote interest in the Air Force and the Aero-Space Age.

### **Electrical Engineering Association**

The Electrical Engineering Association is an organization of electrical engineering majors who are interested in various phases of electrical and



electronic engineering and amateur radio communications. Its purpose is to further these interests by campus projects, by the securing of lecturers, films, and demonstrations, and by organized tutorial sessions. Membership is open to electrical engineering majors who have completed the first semester of their sophomore year.

### **Phi Beta Lambda**

Phi Beta Lambda is a national organization for students who are preparing for careers in business and industry or for careers in business education.

The purposes are to:

1. Strengthen confidence
2. Improve scholarship and develop qualities that will enable them to participate effectively in business, professional and community life.
3. Create school loyalty and help preserve the principles of democracy.
4. Develop leadership for business and business education

### **SCHOLARSHIPS AND AWARDS**

**KAPPA ALPHA PSI FRATERNITY SCHOLARSHIP**—Alpha Nu Chapter of Kappa Alpha Psi Fraternity annually awards a scholarship of \$50 to the highest ranking freshman during the fall semester. In the event of a tie, the two top-ranking freshmen are awarded scholarships of \$25 each.

**A. AND T. STATE UNIVERSITY ALUMNI SCHOLARSHIPS**—Four scholarship grants of \$1,000 each are given annually by the Agricultural and Technical State University Alumni Association to entering freshmen students who earn the highest scores in special competitive college entrance examinations. The grants are made in annual installments of \$250 each, renewable upon the condition that the student maintains a certain minimum standard each year.

The examinations are administered during the spring at several testing centers throughout the State of North Carolina. Announcement of time and place of the examinations is made through the high schools and publicity media. Prospective graduates of accredited high schools in or out of state, ranking in the upper fourth of their classes, are eligible to take the examinations without charge.

**KROGER SCHOLARSHIPS**—The Kroger Scholarship Plan provides a scholarship each year to a freshman majoring in home economics. Awards are made on the basis of scholastic achievement in high school, leadership qualities demonstrated, and financial need.

**SEARS, ROEBUCK FOUNDATION SCHOLARSHIPS**—The Sears, Roebuck Foundation makes available each year scholarships to freshman students who enroll in the School of Agriculture. These scholarships are awarded to majors in agriculture, on the basis of scholastic aptitude of the applicants. Preference is also given to those who would be unable to attend college without this aid.



**SMITH-DOUGLASS F.F.A. SCHOLARSHIPS**—One scholarship is given annually to aid an incoming freshman who majors in agriculture. A recipient receives \$150 during his freshman and sophomore years, and \$100 during his junior and senior years, provided he maintains a satisfactory scholastic record. Applicants must be residents of North Carolina, and must have been active members of a local chapter of the Future Farmers of America. The scholarship is awarded on the basis of need, scholastic aptitude, potentialities for leadership, and achievement in farming. Applications should be filed with the Assistant Supervisor of Vocational Agriculture at A. and T. State University.

**BURLINGTON INDUSTRIES FOUNDATION**—The Burlington Industries Foundation provides two \$1,000 scholarships for students in engineering. These are paid over a period of two years at the rate of \$500 each for the junior and senior years of college. The students are selected by the engineering faculty on the basis of scholarship, leadership, and financial need.

**THE CHARLES L. COOPER AWARD**—Mu Psi Chapter of the Omega Psi Phi Fraternity presents annually this award in memory of Dr. Charles L. Cooper, a former professor of industrial education at the Agricultural and Technical University. It is presented to the student in industrial arts with the highest average above two points. (2.00)

**THE REGISTER AWARD**—As a means of promoting a wider interest and greater activity on the part of the students in the field of journalism, the *Register* awards a gold key to those members of the graduating class who complete a period of at least two years of meritorious service as members of the *Register* staff.

**ALUMNI ATHLETIC AWARD**—The Philadelphia branch of the Agricultural and Technical State University Alumni Association awards a gold medal each year to the student of the graduating class making the best record in major intercollegiate sports.

**ALUMNI SERVICE AWARD**—The Gate City Chapter (Greensboro) of the Agricultural and Technical State University Alumni Association makes an award each year to that member of the graduating class, voted by the Executive Committee of the Faculty as having rendered the "most distinctive service to the University and to the community."

**BROTHERHOOD AWARD**—The Brotherhood Award of \$50 is presented by Mr. Ralph Johns of Greensboro to the student who has done most to promote brotherhood and goodwill.

**HONORARY AWARD**—Students who earn the distinction of performing outstanding leadership and service to the university and in the many activities and organizations, and are good citizens as well as good students, are eligible for nomination to Who's Who Among Students in American Universities and Colleges.

## STUDENT CONDUCT

Students enrolled at North Carolina Agricultural and Technical State University are expected to conduct themselves properly at all times. They

are expected to observe standards of behavior and integrity that will reflect credit upon themselves, their families and the university. They are expected to abide by the laws of the city, state, and nation, and by all rules and regulations of the university.

Accordingly any student who demonstrates an unwillingness to adjust to the rules and regulations that are prescribed or that may be prescribed to govern the student body will be suspended or expelled from the institution. Furthermore, any student whose conduct or behavior is not in harmony with the ideals or purposes of the university will be suspended or expelled.

A student may forfeit the privilege of working for the University when, for any reason, he is placed on probation because of misconduct.

# GENERAL ACADEMIC REGULATIONS





# GENERAL ACADEMIC REGULATIONS

## Admission

A student who wishes to enter The North Carolina Agricultural and Technical State University for the first time will be considered for admission if:

1. The student has graduated from high school with not less than 16 units of credit.
2. The student is transferring from another accredited college or university, is in good standing and has a cumulative average equivalent to "C" or above.
3. The student has graduated from an accredited college or university to enter the Graduate School.

## Procedure for New Students

1. Write to the Director of Admissions for an application blank for admission to the University. Fill it out properly and return it to the Office of Admissions.
2. Arrange for the transcript of academic records from high school and/or college or university previously attended to be sent directly to the Director of Admissions.
3. All candidates for admission to the freshman class must take the Scholastic Aptitude Test prior to admission. This test is administered by the College Entrance Examination Board several times each year at centers throughout the United States and many foreign countries. Testing dates are regularly scheduled in December, January, March, May, and August. Applicants should obtain Bulletins of Information, including application blanks, directly from their high school principals or guidance counselors. If these are not available in the school, applicants should write directly to the College Entrance Examination Board, Box 592, Princeton, New Jersey, for a list of testing dates and centers so that assignments may be made to the center nearest to the applicant's residence.
4. After the completed application form, transcripts, and test results are received, they will be evaluated, and if approved, the student will receive a letter of admission and a permit to register. If the application for admission is not approved, the applicant will be notified.
5. Each candidate for the Freshman Class, who is scheduled to reside on campus, is expected to arrive on the campus the day preceding the date designated on the college calendar for freshman orientation. All freshmen should be present by 8:00 A.M. on the first day.

The permit to register furnished beforehand by the Director of Admissions indicating the School or Department in which the applicant wishes to register must be ready for presentation to proper authorities. The dates indicated in the college calendar for freshmen orientation and registration as well as those for upper-classmen must be strictly observed. Those seeking registration after the scheduled date must pay a late registration fee of \$5.00.

## ADMISSION REQUIREMENTS

### Entrance Units

High School graduates should present the following entrance credits, distributed as shown below:

Subject	Number of Units
English .....	4
*Mathematics (including one unit of Algebra) .....	2
Social Studies (Preferably U. S. History) .....	1
Natural Science .....	1
Electives .....	8
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/>
Total .....	16

The elective units may be selected from any other high school courses. However, students may not present more than two (2) units in activity courses, such as music and physical education, and not more than four (4) units in vocational courses.

\*Students who plan to major in science or business must have one unit of algebra and one unit of plane geometry.

\*Students who plan to major in engineering, mathematics and physics must have two units of algebra, one unit of plane geometry, and one-half unit of trigonometry.

### Conditional Admission

Students who present sixteen (16) acceptable entrance units but do not meet the entrance requirements in mathematics listed for their curricula must take special non-credit courses to meet these deficiencies. The removal of deficiencies must begin immediately upon enrollment in the first year of study.

### Transfer Students

Applications from transfer students cannot be considered until all credentials are received from the high school and all other institutions previously attended. In addition, there must be a statement of good standing and honorable dismissal from these institutions.

Previous college records must show a cumulative average not below "C". Even with a cumulative average of "C" or above, no course is accepted in which a grade below "C" was originally earned.

Accepted courses are recorded to the student's credit, but grade points are not calculated on the transferred courses. The grade points for a transfer student are calculated only on the courses taken here and a student must complete more than half of his required studies here in order to be considered an honor graduate.

### Special Students

In exceptional cases, an applicant of mature years, with special training along particular lines or of long experience in special fields of knowledge,



may be admitted to the college to pursue a non-degree program or to study certain subjects as special students. Even though they do not satisfy regular entrance requirements, such persons must submit evidence of ability to profit from such a program and must do a passing grade of work or forfeit the privilege accorded them. These persons must:

1. Request of the Director of Admissions an application form, fill it in and return it with:
  - (A) Records of previous educational experiences.
  - (B) Other documentary evidence of ability to pursue the courses desired.
  - (C) A statement of the applicant's objectives or purposes in pursuing studies chosen.

### **Filing of Credentials**

Applicants should take the proper steps to see that their credentials, (transcripts, etc.), are sent to the Director of Admissions as early as possible, preferably not less than thirty (30) days before the beginning of the semester in which they plan to enroll.

### **Re-Admission of Former Students**

Former students who interrupted their studies for one or more semesters before graduation need not fill out another application form, but must write to the Director of Admissions, properly identify themselves, and request re-admission except in cases of dismissal for disciplinary or scholastic reasons.

Students who were dismissed for scholastic reasons are to write to the Dean of Academic Affairs and request processing for possible re-admission and await a reply with a permit to register before presenting themselves for registration.

Students whose attendance has been interrupted by the University for disciplinary reasons must apply to the Dean of Student Affairs if they wish a re-study of their cases for possible re-admission.

### **RESIDENCE STATUS FOR TUITION PAYMENT**

1. *General:* The tuition charge for legal residents of North Carolina is less than for nonresidents. To qualify for in-state tuition, a legal resident must have maintained his domicile in North Carolina for at least the six months next preceding the date of first enrollment or re-enrollment in an institution of higher education in this State.
2. *Minors:* The legal residence of a person under twenty-one years of age at the time of his first enrollment in an institution of higher education in this State is that of his parents, surviving parent, or legal guardian. In cases where parents are divorced or legally separated, the legal residence of the father will control unless custody of the minor has been awarded by court order to the mother or to a legal guardian

other than a parent. No claim of residence in North Carolina based upon residence of a guardian in North Carolina will be considered if either parent is living unless the action of the court appointing the guardian antedates the student's first enrollment in a North Carolina institution of higher education by at least twelve months.

A minor student whose parents move their legal residence from North Carolina to a location outside the State shall be considered to be a nonresident after six months from the date of removal from the State.

For the purpose of determining residence requirements under these rules, a person will be considered a minor until he has reached his twenty-first birthday. Married minors, however, are entitled to establish and maintain their residence in the same manner as adults. Attendance at an institution of higher education as a student cannot be counted as fulfilling the six-month domicile requirement.

3. *Adults*: A person twenty-one years of age or older is eligible for in-state tuition if he has maintained continuous domicile in North Carolina for the six months next preceding the date of enrollment or re-enrollment, exclusive of any time spent in attendance at any institution of higher education. An in-state student reaching the age of twenty-one is not required to reestablish residence provided that he maintains his domicile in North Carolina.
4. *Married Students*: The legal residence of a wife follows that of her husband, except that a woman currently enrolled as an in-state student in an institution of higher education may continue as a resident even though she marries a nonresident. If the husband is a nonresident and separation or divorce occurs, the woman may qualify for in-state tuition after establishing her domicile in North Carolina for at least six months under the same conditions as she could if she were single.
5. *Military Personnel*: No person shall be presumed to have gained or lost in-state residence status in North Carolina while serving in the Armed Forces. However, a member of the Armed Forces may obtain in-state residence status for himself, his spouse, or his children after maintaining his domicile in North Carolina for at least the six months next preceding his or their enrollment or re-enrollment in an institution of higher education in this State.
6. *Aliens*: Aliens lawfully admitted to the United States for permanent residence may establish North Carolina residence in the same manner as any other nonresident.
7. *Property and Taxes*: Ownership of property in or payment of taxes to the State of North Carolina apart from legal residence will not qualify one for the in-state tuition rate.
8. *Change of Status*: The residence status of any student is determined as of the time of his first enrollment in an institution of higher education in North Carolina and may not thereafter be changed except: (a) in the case of a nonresident student at the time of his first enrollment who, or if a minor his parents, has subsequently maintained a legal

residence in North Carolina for at least six months, and (b) in the case of a resident who has abandoned his legal residence in North Carolina for a minimum period of six months. In either case, the appropriate tuition rate will become effective at the beginning of the term following the six-month period.

9. *Responsibility of Student*: Any student or prospective student in doubt concerning his residence status must bear the responsibility for securing a ruling by stating his case in writing to the admissions officer. The student who, due to subsequent events, becomes eligible for a change in classification, whether from out-of-state to in-state or the reverse, has the responsibility of immediately informing the Office of Admissions of this circumstance in writing. Failure to give complete and correct information regarding residence constitutes grounds for disciplinary action.

### **Registration**

The registration dates for each semester are listed on the university calendar. Students are urged to register promptly on the dates shown and avoid the penalty of paying the LATE REGISTRATION FEE of \$5.00.

The full payment of fees is a part of the registration process and no student is registered and entitled to go to classes until the prescribed fees have been paid.

## **CLASSIFICATION OF STUDENTS**

### **(Freshmen)**

To be classified as a freshman, a student must have met the minimum standards for admission to A. and T. State University. All entering freshmen will be required to take a placement test in reading. Students will be assigned to the Reading Classes on the bases of their performance on the Reading Test.

### **(Sophomore)**

To be classified as a sophomore, a student must have completed a minimum of 32 semester hours of work open to freshmen and must have earned at least a 1.50 average.

### **(Junior)**

To be classified as a junior, a student must have completed 64 semester hours of work required of sophomores, with at least a 1.70 average. No student will receive junior classification until all required freshman and sophomore courses have been completed.

### **(Senior)**

To be classified as a senior, a student must have completed at least 96 semester hours of required and major work, with at least a 1.90 average. For graduation, a student must have an overall average of 2.00.

**STUDENT LOAD AND SCHOLASTIC STANDARDS****(Quantitative)**

The unit of credit is the semester hour.

A full-time student is one who enrolls for a minimum of twelve (12) hours per semester.

The maximum load a student may carry is twenty-one (21) hours per semester. This includes non-credit courses.

**(Qualitative)**

Students are expected to earn and maintain an accumulative average of "C" or a grade point average of 2.00 on the four point (4.00) system while enrolled in the college.

**(Grading System)**

Grades are assigned and recorded as follows:

Grade	Description	Grade Points
A	Excellent	4
B	Good	3
C	Average	2
D	Below average, but passing	1
F	Failure	0
I	Incomplete	
W	Withdrew	
S	Satisfactory (non-credit courses)	
U	Unsatisfactory (non-credit courses)	

Students are expected to earn and maintain a general average which will permit them to make progress toward graduation.

The following are minimum grade point averages required to permit a student to advance to the next classification: sophomore, 1.50; junior, 1.70, senior, 1.90.

The Committee on Admission and Retention will review the academic records of students whose averages fall below these standards and recommend probation or suspension for students in this category.

A student who has been suspended initially from the University because of poor scholarship may return on probation after the expiration of one semester. A student readmitted after being suspended for poor scholarship must earn an average of 2.00 or above each semester in order to remain eligible to continue. If he fails to attain the minimum average required, he will be dismissed permanently.

Final grade reports are issued to parents and students at the end of each semester.

**Semester Examinations**

A final examination will be required as a part of every course. An examination schedule showing time and place of meeting of each course and

section will be published each semester. Schedules so published will be followed without exception. Any changes in the examination schedule must be approved by the Dean of Academic Affairs.

### **Changes in Schedules**

A change in a student's class program may be made with the consent of the Dean of the School in which the student is enrolled. The student must obtain written permission from his Dean, stipulating the specific changes to be made, then report to the Office of the Registrar to execute the proper forms in making the change.

### **Changing Schools**

Students may transfer from one School of the University to another with the written approval and acceptance of the Deans of the Schools involved. The proper forms on which to apply for such a change are to be obtained from the Office of the Registrar and executed at least six weeks prior to the beginning of the semester in which the student plans to transfer.

### **Failures**

At the very first opportunity, a student must repeat a required course which he has failed, unless the Dean of his School authorizes a suitable substitute course. A course which is pre-requisite to another in a sequence must be passed before taking the next course in the series.

## **WITHDRAWAL FROM COLLEGE**

A student who wishes, or is asked to leave the University at any time during the semester shall execute and file official withdrawal forms. These forms may be obtained from the Office of the Dean of Student Affairs. They should be completed and executed in quadruplicate, (quintuplicate for veterans) and taken to the Cashier's Office. For failure to execute these forms, a student incurs the penalty of receiving an "F" for each course in which he is enrolled that semester.

## **INCOMPLETES**

Students are expected to complete all requirements of a particular course during the semester in which they are registered. However, if at the end of the semester, a small portion of the work remains unfinished and should be deferred because of the prolonged illness of a student or because of some other serious circumstances beyond the control of the student, an "I" may be submitted.

An "I" for a prolonged illness may be submitted only after the written approval of the Dean of Students has been secured. An "I" for other causes may be submitted only with the approval of the Dean of the School.

Along with the recording of the incomplete grade, the instructor must also file, with the head of the department, the student's average grade and a written description of the work which must be completed before the incomplete is removed.



**(Procedure for the Removal of an Incomplete)**

An incomplete grade must be removed within SIX WEEKS after the beginning of the student's next semester in college. The Registrar will notify the student and the instructor of the course in which the incomplete was given and if the student has not removed the incomplete within the time specified, the instructor will submit a grade of "F".

**REPEATING COURSES**

Any undergraduate student who received a final grade of D in a course listed in his major field may be required by the chairman of the department and the dean of the school to repeat the course at the earliest opportunity, unless he decides to change his major. However, a student may not repeat more than twelve hours of his major courses.

When a course is repeated, only the higher grade may count toward meeting course requirements in the major field. The overall scholastic average will reflect both grades.

If a student is required to repeat a course that is prerequisite to another course, he may not take the next course until he has repeated the prerequisite course and obtained a grade of C or higher.

No required major course may be attempted more than three times.

**HONOR ROLL**

To encourage scholarship, the University publishes an Honor Roll at the end of each semester. Regular students whose average grade in all courses is "B" shall be eligible for the Honor Roll.

**GENERAL REQUIREMENTS FOR GRADUATION**

A candidate for a degree from North Carolina Agricultural and Technical State University must satisfy the following requirements:

1. Choose a specific curriculum leading to a degree in one of the schools and complete the requirements of this curriculum.
2. Complete a minimum of 124 semester hours excluding deficiency courses and remedial work for the Bachelor of Science degree.
3. Complete the core requirements of the University in English, Mathematics, Natural Science, Social Science, Humanities and Health or Physical Education for the Bachelor of Science degree.
4. Earn an average of two (2) grade points for every semester hour undertaken including hours passed or failed. After completing the number of credit hours required for graduation, if the student is deficient in grade points, he must take additional courses that have been approved by his academic dean to secure these points. The student must also obtain an average of 2.00 or more in his major field.
5. Complete a minimum of three semesters as a full time student in residence at the University. At least one half of the student's credits in his major field must be earned here.



6. Take the Graduate Record Examination and/or the National Teachers Examination if applicable to his program.
7. Clear all academic conditions by the end of the semester preceding graduation.
8. Pay all University bills and fees including a five dollar (\$5.00) diploma fee preceding graduation.
9. File an application for graduation with the Office of Registrar three months prior to the expected date of graduation.

One of the aims of the University is to prepare men and women who will be able representatives of this institution. To this end, the University reserves the right to refuse to graduate any student who may be qualified academically but who may otherwise seem unfit.

### **GRADUATION WITH HONORS**

Graduation honors are awarded candidates who complete all requirements for graduation in accordance with the following stipulations: (1) Those who maintain a general average within the range of 3.00 to 3.24 will receive CUM LAUDE, (2) those who maintain a general average within the range from 3.25 to 3.49 will receive MAGNA CUM LAUDE, and (3) those who maintain a general average within the range of 3.50 to 4.00 will receive SUMMA CUM LAUDE. Publication of honors and scholarships is made at graduation and in the University Catalog.

### **CLASS ATTENDANCE**

Regular and punctual class attendance is expected of all students. It is further expected that students will have sufficient maturity to assume responsibility for regular attendance and to recognize and accept the consequences of failure to attend.

The following regulations related to class attendance will be observed:

1. Instructors will keep attendance records regularly beginning with the first meeting of the class.
2. Should the student cause his work to suffer because of excessive absence, the instructor has the responsibility to advise the student of the fact and to report it to the Dean of Student Affairs.
3. Students are expected to recognize that instructors and facilities may be overtaxed by excessive requests for make up examinations and laboratory periods which have been missed. Therefore, instructors are not expected or required to honor excessive requests.
4. Because of the varied nature of courses, the instructor of each class is expected to interpret for the students the expectations concerning attendance in that particular class. This will take place at the beginning of the term.

### **GRADUATION UNDER A GIVEN CATALOGUE**

A student may expect to earn a degree in accordance with the requirements of the curriculum outlined in the catalogue in force when he first

entered the University provided the courses are being offered. Moreover, he must complete these requirements within six years. On the other hand, he may graduate under any subsequent catalogue published while he is a student. If a student elects to meet the requirements of a catalogue other than the one in force at the time of his original entrance he must meet all requirements of the catalogue he elects.

### DEGREE PROGRAMS

Students who completes one of the four or five year courses of study will be awarded the degree of Bachelor of Science.

Those graduating from a four-year curriculum in the School of Agriculture shall be entitled to the Bachelor of Science degree in Agricultural Education, Agricultural Science, Agricultural Technology, Agricultural Economics, Home Economics Education, Clothing and Textiles, Foods and Nutrition, Institution Management or Child Development.

Those graduating from a four-year curriculum in the School of Arts and Sciences shall be entitled to the Bachelor of Science degree in Art, English, Foreign Languages, Music, Biology, Chemistry, Mathematics, Physics, Economics, History, Political Science, or Sociology.

Those graduating from a four-year curriculum in the School of Education shall be entitled to the Bachelor of Science degree in Health and Physical Education, Psychology, Industrial Arts Education, Industrial Technical Education or Vocational Industrial Education.

Teaching majors are offered in the following areas: Art, Biology, Chemistry, English, French, Mathematics, Music, Physics, History, Social Studies, Agricultural Education, Business Education or Home Economics Education. These degree programs are offered in cooperation with the School of Arts and Sciences, the School of Agriculture and the Division of Business Administration.

Those graduating from a four or five year curriculum in the School of Engineering shall be entitled to the Bachelor of Science degree in Architectural Engineering\*, Electrical Engineering, Mechanical Engineering, Engineering Mathematics or Engineering Physics.

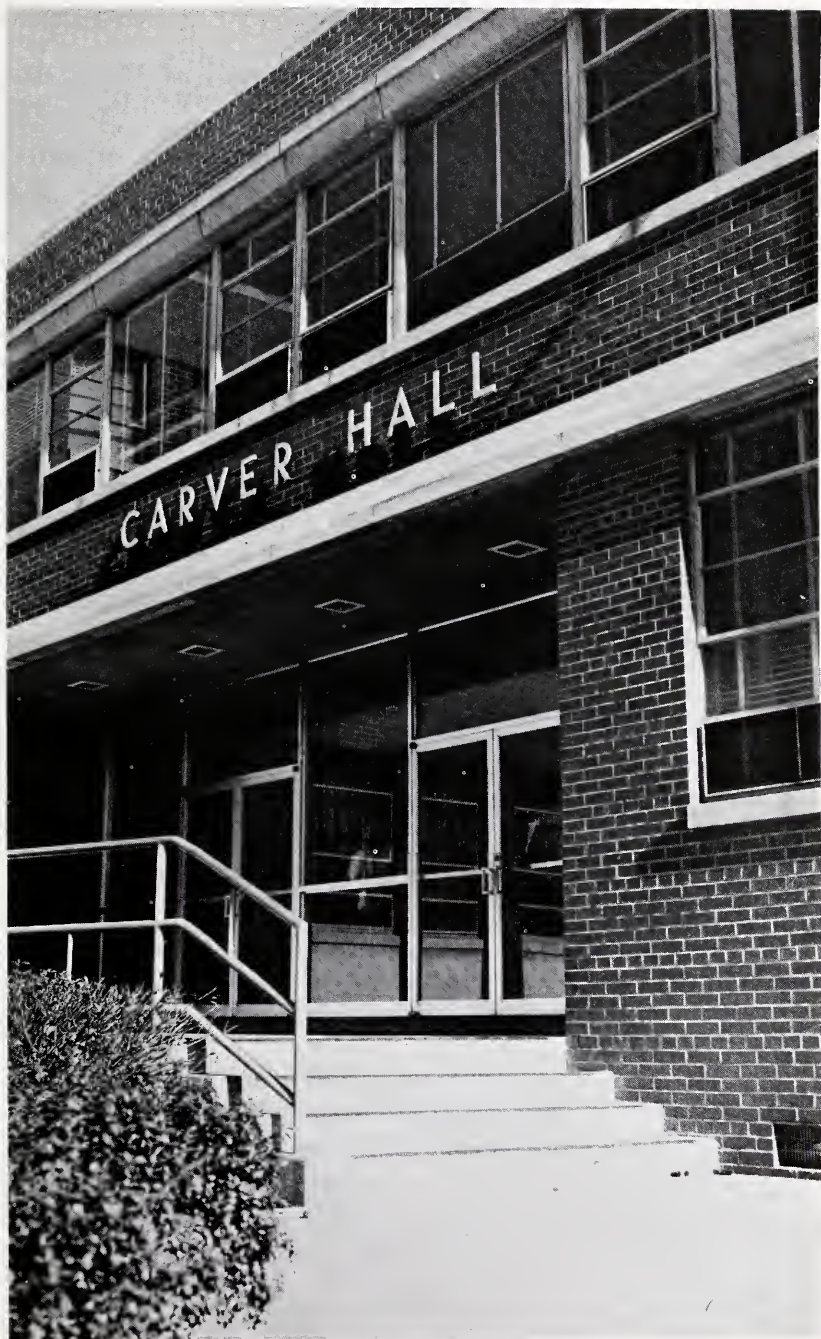
Those graduating from a four year curriculum in the Division of Business Administration shall be entitled to the Bachelor of Science degree in Accounting, Business Administration or Business Education.

Those graduating from four year curriculum in the School of Nursing shall be entitled to the Bachelor of Science degree in Nursing.

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\*Five year program.

# SCHOOL OF AGRICULTURE





# SCHOOL OF AGRICULTURE

BURLEIGH C. WEBB, *Dean*

*Philosophy and Objectives.* The School of Agriculture embraces the fundamental philosophy of the Land-Grant Institution and it accepts the obligation to provide a program of resident and off-campus instruction adequate to meet the needs of those who seek this service. It administers to the general needs of an interdependent rural-urban society and to the special needs of those who desire and benefit from instruction in agriculture, home economics, and the natural sciences.

The objectives of the School of Agriculture are two fold: (1) to extend the frontiers of knowledge and the professional competencies of its faculty and the academic proficiency of its students through organized instruction and research and (2) to share its resources with its clientele through organized short courses, conferences, and related activities designed to meet special needs.

*Departmental Organization.* The School of Agriculture is organized into the following departments: (1) Agricultural Education, (2) Animal Science, (3) Plant Science, (4) Home Economics.

*Requirements for Admission.* The requirements for admission to the School of Agriculture are the same as the general requirements for admission to the University.

*Requirements for Graduation.* The requirements for graduation for the Bachelor of Science Degree are as follows:

1. The student must have satisfied the course requirements of an approved curriculum in an organized department administered by the School of Agriculture.

2. The student must have earned a cumulative average quality of at least a "C" in his major courses and in his overall academic program.

*Curricula.* The curricula of the School of Agriculture are designed to provide the students who pursue courses of instruction leading to the Bachelor of Science Degree (1) a fundamental understanding of the basic physical and biological sciences which are applied to their respective majors; (2) liberal educational experiences offered by the University; and a (3) knowledge and competency required for specialization in any one of the major offerings:

Major offerings are as follows:

## A. Technical Agriculture

1. Agricultural Business
2. Agricultural Education
3. Agricultural Science
4. Agricultural Technology



## B. Home Economics

1. Clothing, Textiles and Related Art
2. Foods and Nutrition
3. Home Economics Education
4. Institution Management
5. Child Development

A. The curricula and courses in Technical Agriculture are related to career opportunities in the various fields: (1) Farm Production and Technology; (2) Off-Farm Businesses and Industries related to farming and (3) Research and Education. In recognition that each of these fields requires a body of knowledge common to all, and that each has a body of knowledge distinctly peculiar to it, the curricula in Technology, Business, and Science are designed to provide certain required courses and at the same time provide a rather wide degree of flexibility which the student may use to his advantage by selecting courses in consultation with his faculty advisor that will meet his particular needs and objectives. These curricula are designed to serve the industry of agriculture specifically and the public in general. They provide educational opportunities for students interested in the many sectors of agricultural industries and the intellectual background on which students can build satisfying lives through service.

*Agricultural Business.* The Agricultural Business major is designed for those students interested in the business industry phase of Agriculture. The objective of the program of instruction in this major is to equip students for employment in those industries that furnish supplies and services to farmers and those that store, process, distribute, and merchandise the products of the farm. Graduates in this major are specially equipped for employment as salesmen, managers, public relations and technical supervisors with companies dealing with feed, seed, fertilizer, food processing and other such industries.

Students who major in Agricultural Business will be expected to develop high competency in the area of Economics and Business, including selected courses that form a progressive sequence, or a combination that satisfied logical objectives. The major in Agricultural Business may at the beginning of the sophomore year, plan with his faculty adviser a program of specialization in Agricultural Economics or Horticulture.

*Agricultural Education.* The curriculum in Agricultural Education offers, the student a program of study designed to develop competency in teaching and related types of work. The curriculum is especially suited for the student who aspires to become a teacher of Vocational Agriculture or Agricultural Extension.

The student who wishes to major in Agricultural Education should, preferably at the beginning of the sophomore year or before his junior year, plan with his faculty advisor a course of study which will meet the certification requirements of teachers of Vocational Agriculture in North Carolina.



*Agricultural Science.* The objective of this program is to provide an opportunity for the student to develop competency in the scientific disciplines essential to graduate study, scientific agriculture, and research.

The major in Agricultural Sciences should, in the beginning of the sophomore year, plan with his faculty advisor a program for specialization in one of the following areas: Agricultural Engineering, Soil Science, or Plant Science. The students' program will include appropriate supporting courses in Biology, Chemistry, Physics, Engineering, and Mathematics.

*Agricultural Technology.* The curriculum in Agricultural Technology provides an opportunity to develop knowledge and skills in a specialized area of agricultural production. The program of instruction for the student who pursues this program places emphasis on the development of competency in the management and operation of commercial farms or in related industry that require specialized knowledge and technical skills.

The major in Agricultural Technology should, at the beginning of the sophomore year, plan in consultation with his faculty advisor, courses of study for specialization in one of the following areas: Animal Husbandry, and Dairy Manufacturing.

*Home Economics.* The curricula leading to the Degree of Bachelor of Science in Home Economics are offered in the area of (1) Clothing, Textiles and Related Art, (2) Foods and Nutrition, (3) Home Economics Education, (4) Institution Management, and (5) Child Development.

Outlines and curricula are carried in this Bulletin under the heading of Department of Home Economics.

## DEPARTMENT OF AGRICULTURAL EDUCATION

A. P. BELL, *Acting Chairman*

The Department of Agricultural Education offers professional courses to prepare persons for teaching vocational agriculture and related fields. The program is designed to meet the certification requirements of vocational agriculture teachers in North Carolina. The Department offers courses leading to the Master of Science Degree in the field of Agricultural Education.

### PROGRAM FOR AGRICULTURAL EDUCATION MAJORS

#### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3601, 3602 .....	3	3
Social Science 2800, 2801 .....	3	3
Botany 1507 .....	4	—
Zoology 1512 .....	—	4
Animal Husbandry 1301 .....	—	3
Physical Education 2701, 2703 .....	1	1
Education 2100 .....	1	—
Air, Military Science or Elective .....	1	1
General Agriculture 1000, 1001 .....	1	1
	<hr/> 18	<hr/> 20

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2425 .....	—	2
Psychology 2320 .....	3	—
Chemistry 1611, 1612 .....	4	4
Plant Science 1400 .....	—	3
Agricultural Engineering 1404 .....	—	3
Dairy Husbandry 1311 .....	3	—
Poultry Husbandry 1317 .....	3	—
Humanities 2434, 2435 .....	3	3
Health Education 2700 .....	2	—
Agricultural Economics 1121 .....	—	3
or Economics 2840 .....	—	3
Air, Military Science or Elective .....	2	2
	20	20

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Agricultural Education 1240 .....	2	—
Agricultural Education 1242 .....	—	2
Agricultural Education 1241, 1243 .....	2	2
Technical Agriculture Electives .....	3	6
Bacteriology 1524 .....	4	—
Earth Science 1429 .....	—	3
Education 2154 .....	3	—
Psychology 2322 .....	—	2
Free Electives .....	3	3
	17	18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Agricultural Economics 1122 .....	3	—
Agricultural Education 1261, 1262 .....	3	6
Agricultural Engineering 1465 .....	—	2
Rural Sociology 1146 .....	2	—
Electives (Technical Agriculture) .....	4	—
Zoology 1554 or Botany 1547 .....	3	—
Agricultural Education 1263 .....	—	2
	15	10

**COURSE OFFERINGS IN AGRICULTURAL EDUCATION****Undergraduate****1240. Audio-Visual Aids in Vocational and Technical Education.**

(Formerly Ag-Ed 300.)

Credit 2(1-2)

Techniques in preparing, using, and evaluating audio-visual aids in vocational and technical education. It includes the use of pictorial materials applied to teaching agriculture and the operation and adjustment of equipment found in departments of vocational agriculture.

- 1241. Youth Organizations and Leadership in Secondary Schools.** Credit 2(2-0)  
(Formerly Ag-Ed 303.)

Practices and procedures of setting up local, district and State organizations. Emphasis will be placed on duties and responsibilities of officers and members, and how to take advantage of training opportunities.

- 1242. Secondary Education in Agriculture.** Credit 2(2-0)  
(Formerly Ag-Ed 337.)

Designed to acquaint students with the historical objectives of vocational education and agriculture, the problems in the area of secondary schools, and some solutions.

- 1243. Materials and Methods of Teaching Out-of-School Groups.** Credit 2(2-0)  
(Formerly Ag-Ed 401.)

Methods and materials used in teaching adults and young farmers. It will include developing and using various teaching devices and aids for out-of-school groups.

- 1261. Materials and Methods of Teaching Vocational Agriculture.** Credit 3(3-0)  
(Formerly Ag-Ed 441.)

Principles of teaching as applied to vocational agriculture. Preparing and using lesson plans and organizing teaching aids to meet community needs. Prerequisites: Agricultural Education 1240 and 1242; Psychology 2320 and 2322.

- 1262. Student Teaching.** Credit 6(6-0)  
(Formerly Ag-Ed 442.)

Students will be required to spend 12 weeks in an approved teaching center doing observation and directed student teaching. Prerequisite: Agricultural Education 1261.

- 1263. Evaluation and Problems in Teaching Vocational Agriculture.** Credit 2(2-0)  
(Formerly Ag-Ed 443.)

The process of discovering and analyzing problems in the field; program building, and evaluation of instruction in Vocational Education. This will include an appraisal of all phases taught by the teacher of agriculture. Prerequisite: Agricultural Education 1261, 1262.

### **Advanced Undergraduate and Graduate**

- 1271. Adult Education in Vocational Agriculture.** Credit 3(3-0)  
(Formerly Ag-Ed 502 and 503.)

Principles and problems of setting up and directing adults with emphasis on conducting organizing instruction.

- 1272. The Principles of Agricultural Education.** Credit 3(3-0)  
(Formerly Ag-Ed 504.)

The principles and practices in agricultural education revealed by research and new trends.

- 1273. Problem Teaching in Vocational Agriculture.** Credit 3 (3-0)  
(Formerly Ag-Ed 506.)

Setting up problems for teaching unit courses in vocational agriculture.

- 1274. Public Relations in Vocational Agriculture.** Credit 3 (3-0)  
(Formerly Ag-Ed 507.)

The means and methods of promoting and publicizing the local program of vocational agriculture.

Consult the bulletin of the Graduate School for a description of graduate courses in Agricultural Education.

**1275. Guidance and Group Instruction In Vocational Education.**

(Formerly Ag-Ed 505.)

Credit 3(3-0)

Guidance and group instruction applied to agricultural occupations and other problems of students in vocational education.

**GRADUATE**

These courses are open to graduate students only. See the Bulletin of the Graduate School for course descriptions.

**1292. Administration and Supervision.**

(Formerly Ag. Ed. 601 &amp; 1282.)

Credit 3(3-0)

**1293. Program Planning. (Formerly Ag. Ed. 602 & 1183.)**

Credit 3(3-0)

**1294. History of Agricultural Education.**

(Formerly Ag. Ed. 603 &amp; 1284.)

Credit 3(3-0)

**1285. Seminar in Agricultural Education.**

(Formerly Ag. Ed. 608.)

Credit 1(1-0)

**1286. Public Relation in Agriculture.**

(Formerly Ag. Ed. 605.)

Credit 3(3-0)

**1287. Research in Agricultural Education.**

(Formerly Ag. Ed. 606.)

Credit 2(2-0)

**1288. Philosophy of Vocational Education.**

(Formerly Ag. Ed. 607.)

Credit 3(3-0)

**1289. Recent Developments and Trends in Agricultural Education. (Formerly Ag. Ed. 610 and 611.)**

Credit 3(3-0)

**1290. Community Problems in Agriculture.**

(Formerly Ag. Ed. 612.)

Credit 3(3-0)

**1291. Methods and Techniques of Supervision in Agricultural Education. (Formerly Ag. Ed. 609.)**

Credit 3(3-0)

**1299. Thesis Research Agricultural Education.**

Credit 4(4-0)

**DEPARTMENT OF ANIMAL SCIENCE**W. L. KENNEDY, *Chairman*

The Department of Animal Industry offers courses designed to meet the diverse interests of students by offering a choice of several options of study in which the students may specialize. Students wishing a major in Agricultural Sciences or Agricultural Technology may concentrate in either of the following fields of specialty: Animal Husbandry, Dairy Husbandry, Diary Manufacturing, or Poultry Husbandry.

The specialized options of the students are particularly well suited to equip them as owners and managers of general farms where livestock is handled, for specialized types of dairy and poultry farming, and as instructors and investigators in Animal Industry.

## PROGRAM FOR AGRICULTURAL TECHNOLOGY MAJORS

## Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Social Science 2800, 2801 .....	3	3
Botany 1507, Zoology 1512 .....	4	4
Mathematics 3611, 3613 .....	4	4
General Agriculture 1100, 1101 .....	1	1
Education 2100 .....	1	—
Air, Military Science or Elective .....	1	1
	<hr/> 18	<hr/> 17

## Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Humanities 2434, 2435 .....	3	3
Chemistry 1611, 1612 .....	4	4
Animal Husbandry 1301; Poultry Husbandry 1317 .....	3	4
Dairy Husbandry 1311; Plant Science 1400 .....	3	3
Agricultural Economics 1121 .....	3	—
Health Education 2700 .....	—	2
Air, Military Science or Elective .....	2	2
	<hr/> 18	<hr/> 18

## Junior Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Economics 2840, Agricultural Economics 1122 .....	3	3
Bacteriology 1524 .....	4	—
Agricultural Engineering 1404; Soil Science 1438 .....	3	4
*Electives (Major Area) .....	4	7
Electives .....	3	3
	<hr/> 17	<hr/> 17

## Senior Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Animal Husbandry 1324; Soil Science 1438 .....	3	3
Animal Husbandry 1343; Agricultural Engineering 1442 .....	2	3
*Electives .....	9	8
	<hr/> 14	<hr/> 14

\* The 28 credits required as major electives are to be taken such that: 12 credits are elected from supporting courses in a chosen option; 16 credits are elected from the area of concentration with the approval of the advisor.



**Supporting Courses**

*Agricultural Engineering*: Mathematics 3621, 3622; Physics 3825, 3826.

*Plant and Soil Science*: Bacteriology 1544; Botany 1527; Botany 1528, 1547; Chemistry 1621, 1622, 1624.

*Agricultural Economics*: Economics 2841, 2842, 2863, 2864, 2866; Mathematics 3621, 3622.

**COURSES IN ANIMAL HUSBANDRY****Undergraduate**

1301. **Principles of Animal Husbandry.** Credit 3(2-2)  
(Formerly An. Husb. 201 and 122)

Principles of feeding, managing and marketing of meat animals year to year and seasonal price trends and relationships. Relation of slaughter grades to carcass cutout value.

1302. **Judging and Selecting Dairy and Meat Animals.** Credit 3(1-4)  
(Formerly A. H. 344)

Herd book study, pedigree evaluation and breed. History and organization. Included also a study of dairy and meat animals included also a study of dairy meat animals including desired characteristics in breeding and market animals and relating to productive performance.

1321. **Meat and Meat Products.** Credit 3(2-2)  
(Formerly A. H. 442)

Meat production from a market standpoint with laboratory work in slaughtering, curing and marketing meat products. Special training in points of selection of farm animals.

1322. **Animal Breeding.** Credit 3 (2-2)  
(Formerly A. H. 334)

A study of the principles of genetics as applied to the improvement of farm animals and some of the methods and problems of the breeder.

1323. **Livestock Production.** Credit 4(3-2)  
(Formerly A. H. 435)

Breeds of beef cattle, swine and sheep—their selection, care and management.

1324. **Livestock Feeding.** Credit 3(3-0)  
(Formerly A. H. 332)

Principles of feeding and the composition of feeds.

1341. **Anatomy and Physiology of Farm Animals.** Credit 3(2-2)  
(Formerly A. H. 331)

Designed to acquaint students with structure and functions of organs, tissues and systems of farm animals.

1342. **Physiology of Reproduction of Farm Animals.** Credit 3(2-2)

Anatomy of the reproduction organs with detailed coverage of the physiology processes involved and of factors controlling and influencing them.

1343. **Disease of Farm Animals.** Credit 2(2-0)  
(Formerly A. H. 433)

The common disease of livestock with reference to cause, prevention and treatment.

**Advanced Undergraduate and Graduate**

1371. **Principles of Animal Nutrition.** Credit 3(3-0)  
(Formerly A. H. 501)

Fundamentals of modern animal nutrition including classification of nutrients, their general metabolism and role in productive functions. (Prerequisite A. H. 1324)

1372. **Animal Husbandry Seminar.** Credit 1(1-0)  
(Formerly A. H. 502 and A. H. 503)

A review and discussion of current literature pertaining to all phases of Animal Husbandry.

1373. **Advanced Livestock Management.** Credit 3(3-0)  
(Formerly A. H. 513, A. H. 514, and A. H. 515)

Special work in problems in dealing with feeding, breeding, and management in the production of beef cattle, sheep and swine.

**COURSES IN DIARY HUSBANDRY****Undergraduate**

1311. **Principles of Dairying.** Credit 3(2-2)  
(Formerly Dairy Husb. 201)

The fundamental principles of dairying, types of dairy cattle; the composition of milk, its chemical and physical properties, sampling and testing of milk; selection and herd management.

1312. **Dairy Technology.** Credit 2(1-2)  
(Formerly Dairy Husb. 222)

The composition of milk and milk products; study of the Babcock test for fat in milk and cream and use of modified Babcock test for fat in other dairy products. (Prerequisite Dai. Husb. 1311.)

1313. **Dairy and Food Plant Sanitation.** Credit 2(1-2)  
(Formerly Dairy Husb. 223)

Principles and procedures, sanitary standards and regulations for milk food products; equipment cleaning and detergents used for an effective job.

1314. **Dairy Plant Practice.** Credit 2(0-4)  
(Formerly Dairy Husb. 246)

Assigned practice work at the college dairy and the milk and ice cream laboratories of the college dairy plant; given for both dairy manufacturing and dairy husbandry majors. (Prerequisite—three dairy courses.)

1325. **Dairy Plant Management.** Credit 2(1-2)  
(Formerly Dairy Husb. 330)

The organization and management of dairy plant; procurement of raw supplies; plant layout; equipment for plants, distribution of products, cost and operation, and record keeping.

1326. **Dairy Products Judging.** Credit 2(0-4)  
(Formerly Dairy Husb. 340)

Standards and grades of dairy products; practice in judging milk, cream, butter, and ice cream.

1327. **Market Milk.** Credit 2(1-2)  
(Formerly Dairy Husb. 342)

The market milk industry, milk ordinances, city milk, supply, transportation, grading, pasteurizing, bottling, and distribution. (Prerequisite Da. Husb. 1311, 1312.)

1328. **Advanced Dairy Technology.** Credit 2(1-2)  
(Formerly Dairy Husb. 343)

Theory of and practice in analytical methods used for control in the dairy manufacturing plant. (Prerequisite Dairy Husb. 1327)

1329. **Ice Cream Making.** Credit 3(1-4)  
(Formerly Dairy Husb. 344)

The principles involved in the manufacturing of commercial ice cream and ices.

1330. **Dairy Cattle and Milk Production.** Credit 4(3-2)  
(Formerly Dairy Husb. 334 and 441)

Breeds of dairy cattle; problems of economical milk production; fitting and showing.

1344. **Dairy Breeds and Pedigrees.** Credit 2(1-2)  
(Formerly Dairy Husb. 447)

A study of dairy pedigrees and breed families; testing and association methods.

1345. **Dairy Cattle Judging.** Credit 2(1-2)  
(Formerly Dairy Husb. 448)

Characteristics of dairy breeds and score card requirements; relation of type, form and function to the value of selection. Practice judging.

#### **Advanced Undergraduate and Graduate**

1374. **Dairy Seminar.** Credit 1(1-0)  
(Formerly Dairy Husb. 501)

Assignments of papers on subjects relating to the dairy industry and methods of preparing and presenting such papers.

1375. **Dairy Seminar.** Credit 1(1-0)

Assignments of papers on subjects relating the dairy industry and methods of preparing and presenting such papers.

1376. **Special Problems.** Credit 3(3-0)  
(Formerly Dairy Husb. 504)

Assignment of work along special lines in which a student may be interested, given largely by the project method for individuals either in Dairy Manufacturing or Dairy Husbandry. (Prerequisite—three advanced courses in dairying.)

#### **COURSES IN POULTRY HUSBANDRY**

##### **Undergraduate**

1317. **Poultry Production.** Credit 3(2-2)  
(Formerly Poultry Husb. 211, 212)

Practices and principles of poultry production.

1338. **Fundamentals of Poultry Breeding.** Credit 4(3-2)  
(Formerly Poultry Husb. 331 and 334)

Breeding and selection and improvement of stock. (Prerequisite Poultry Husb. 1317.)

1356. **Diseases and Parasites of Poultry.** Credit 3(2-2)  
(Formerly Poultry Husb. 441)

Poultry hygiene; causes of diseases; symptoms and control of diseases and parasites. (Prerequisite Poultry Husb. 1317.)

1357. **Incubation and Hatchery Management.** Credit 4(2-4)  
(Formerly Poultry Husb. 222 and 442)

Management of poultry farm and hatchery operation. (Prerequisite Poultry Husb. 1317.)

1358. **Processing and Marketing of Poultry Products.** Credit 3(2-2)  
(Formerly Poultry Husb. 443)

Methods of killing, dressing, grading and storage of poultry meats and the grading and storage of eggs; transportation of poultry products and factors influencing price. (Prerequisite Poultry Husb. 1317.)

#### **Advanced Undergraduate and Graduate**

1378. **Poultry Seminar.** Credit 1(1-0)  
(Formerly Poultry Husb. 501)

Special articles and reports on subjects relating to the poultry industry will be assigned each student with round table discussion.

1379. **Poultry Anatomy and Physiology.** Credit 3(2-2)  
(Formerly Poultry Husb. 334)

A course which deals with the structure and function of tissues, organs, and systems of the domestic fowl. (Prerequisite Poultry Husb. 1356.)

#### **GRADUATE COURSES**

These courses are open to graduate students only. See the bulletin of the Graduate School for course descriptions.

#### **GRADUATE COURSES IN ANIMAL HUSBANDRY**

1385. **Selection of Meat and Meat Products.** Credit 3(2-2)  
(Formerly A. H. 1381)
1386. **Advanced Livestock Marketing.** Credit 3(3-0)  
(Formerly A. H. 1382)
1387. **Advanced Livestock Production.** Credit 3(2-2)  
(Formerly A. H. 1383)

#### **GRADUATE COURSE IN DIARY HUSBANDRY**

1385. **Advanced Dairy Farm Management.** Credit 3(2-2)  
(Formerly D. H. 1384)

#### **GRADUATE COURSE IN POULTRY HUSBANDRY**

1394. **Poultry Research.** (Formerly P. H. 601) Credit 3(0-6)

## DEPARTMENT OF PLANT SCIENCE AND TECHNOLOGY

SAMUEL J. DUNN, *Chairman*

The programs in this department are designed to give the students broad scientific and technical training which will enable them to take advantage of the many job opportunities available in these fields. There is considerable flexibility in the various programs to allow for a choice of electives which may better serve the individual needs of the students.

The department offers training that is especially attractive to prospective majors who have aptitudes in science and technology and who desire to apply their training in the pursuit of careers in Modern Agricultural Science and Technology or to train further at the graduate level.

Majors in Agricultural Science or Agricultural Technology may elect options in (1) Agronomy with emphasis on Crop Science or Soil Science, (2) Horticulture, or (3) Agricultural Engineering by following the appropriate curriculum outlined in the catalog.

### PROGRAM FOR AGRICULTURAL SCIENCE MAJORS

#### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2100 .....	1	—
English 2401, 2402 .....	4	4
Social Science 2800, 2801 .....	3	3
Botany 1507, Zoology 1512 .....	4	4
Mathematics 3611, 3613 .....	4	4
General Agriculture 1000, 1001 .....	1	1
Air or Military Science .....	1	1
	18	17

#### Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Humanities 2434, 2435 .....	3	3
Chemistry 1611, 1612 .....	4	4
Agricultural Engineering 1403; Animal Husbandry 1301 .....	3	3
Plant Science 1400; Poultry Husbandry 1317 .....	3	3
Health Education 2700 .....	2	—
Air or Military Science .....	2	2
	17	15



**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Physics 3801 .....	4	—
**Physics 3825 or Chemistry 1621 .....	—	4-5
Soil Science 1438 .....	—	4
Animal Husbandry 1301 or Agricultural Engineering 1404 .....	3	—
Economics 2840 .....	—	3
*Electives (Major Area) .....	6	4
Electives .....	3	3
	<hr/> 16	<hr/> 18-19

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mathematics 3624 .....	—	3
Agricultural Economics 1121 .....	3	—
Bacteriology 1524 .....	4	—
*Electives (Major Area) .....	9	15
	<hr/> 16	<hr/> 18

**Supporting Courses**

*Agricultural Engineering:* Mechanical Engineering 3701, 3702, 3720, 3725, 3745, 3746; Mathematics 3621, 3622.

*Plant and Soil Science:* Bacteriology 1544; Botany 1527, 1528, 1547; Chemistry 1621, 1622, 1623, 1662, 1663, 1664, 1777.

*Animal Science:* Zoology 1533, 1552, 1566; Agricultural Economics 1122; Chemistry 1622, 1624.

*Agricultural Economics:* Economics 2841, 2842, 2863, 2864, 2866; Mathematics 3621, 3622.

**COURSES IN PLANT SCIENCE****Undergraduate**

**1400. Plant Science I.** Credit 3(2-2)  
(Formerly Crop Science 111 and Hort. 111)

An introduction to the basic principles underlying the production of economic Botany 1507.)

**1420. Plant Science II.** Credit 3(2-2)  
(Formerly Crop Science 111, Hort. 122, and Hort. 233)

History, classification, culture and utilization of economic plants; basic physical, economical and social conditions relating to their growth, distribution and improvement. (Prerequisite Pl. Sc. 1438.)

**1460. Seminar in Plant Science and Technology.** Credit 1(1-0)  
(Formerly Crop Science 444)

Current problems in Plant Science and Technology. Designed especially for unifying the three major areas of the department by involving both the staff and junior and senior students.

**COURSES IN AGRICULTURAL ENGINEERING****Undergraduate**

- 1403. Agricultural Drawing.** Credit 3(0-6)  
(Formerly Ag. Engr. 111)  
Lettering, use of instruments, multi-view projection drawing, auxiliary projection, selection views and dimensioning, and basic structural drawing to include the phases of working drawings.
- 1404. Farm Shop.** Credit 3(1-4)  
(Formerly Ag. Engr. 122)  
Selection, sharpening, care and correct use of shop tools and equipment; woodwork and simple carpentry; sheet metal work; elementary forge work; electric arc and oxyacetylene welding; pipe fitting and simple plumbing repairs.
- 1423. Field Machinery.** Credit 3(1-4)  
(Formerly Ag. Engr. 223)  
Principles, operation, adjustment and maintenance of farm field machinery.
- 1424. Farm Buildings.** Credit 3(1-4)  
(Formerly Ag. Engr. 224)  
Fundamentals of building construction, applied to location, selection of materials, foundations and planning farm structures. (Prerequisite Ag. Engr. 1403.)
- 1441. Surveying, Drainage, and Soil Conservation.** Credit 3(1-4)  
(Formerly Ag. Engr. 331)  
Principles of surveying, drainage, planning of soil erosion and drainage systems, based on topographical and soil requirements, and soil conservation practices. (Prerequisites Soil Sc. 1438; Math. 3611.)
- 1442. Farm Power.** Credit 3(1-4)  
(Formerly Ag. Engr. 332)  
Principles of mechanical power, use, care and adjustment of internal combustion engines. (Prerequisite Physics 3825.)
- 1462. Dairy Engineering.** Credit 3(1-4)  
(Formerly Ag. Engr. 440)  
The general engineering principles of power selection, installation and maintenance, refrigeration and heat transfer as they apply to equipment used in the dairy industry. Also plant arrangement and management.

**For Dairy Science Majors**

- 1463. Rural Electrification.** Credit 3(1-4)  
(Formerly Ag. Engr. 441)  
The study of electricity, electrical wiring, and electrical devices including motors, with particular emphasis upon the relation to these to the home and farm. (Prerequisite Physics 3825, 3826.)
- 1464. Water Supply and Sanitation for the Farm and Home.** Credit 3(1-4)  
(Formerly Ag. Engr. 442)  
The planning and installation of farm water and sanitation systems. (Prerequisites Ag. Engr. 1403 and 1404; Bact. 1524.)
- 1465. Farm Shop Organization and Management.** Credit 3(1-4)  
(Formerly Ag. Engr. 444)  
A course designed for prospective and in-service teachers of vocational agriculture; includes presentation of purpose, plans and equipment of shops, organization of course of study and methods of teaching. (Prerequisites Ag. Engr. 1404; Ag. Ed. 1261.)

**Advanced Undergraduate and Graduate**

1475. **Conservation, Drainage and Irrigation.** Credit 3(1-4)  
(Formerly Ag. Engr. 500)

Improvement of soil by use and study of conservation practices, engineering structures, drainage, and irrigation systems. (Prerequisite Ag. Engr. 1441.)

1476. **Advanced Farm Shop.** Credit 3(1-4)  
(Formerly Ag. Engr. 502)

Care, operation and maintenance of farm shop power equipment. (Prerequisite Ag. Engr. 1404.)

1477. **Special Problems in Agricultural Engineering.** Credit 3(0-6)  
(Formerly Ag. Engr. 503)

Special work in Agricultural Engineering on problems of special interest to the student. Open to seniors in Agricultural Engineering.

**COURSES IN CROP SCIENCE****Undergraduate**

1427. **Forage Crops.** Credit 3(2-2)  
(Formerly Crop Science 224)

Grasses, legumes and other plants and their uses as hay, pasture, silage and special purpose forages, identification of plants and seeds and study of quality in hay, silage and pasture population. (Prerequisite Plant Science 1400.)

1445. **Determining Crop Quality.** Credit 4(2-4)  
(Formerly Crop Science 341)

The recognition of high quality crop products as influenced by growth and maturity factors, weeds and diseases, determination of commercial quality through study land use and grades; identification of crops, planning crop exhibits. (Prerequisite Plant Science 1420.)

**Advanced Undergraduate and Graduate**

1478. **Plant Chemicals.** Credit 3(2-2)  
(Formerly Crop Science 500)

A study of the important chemical pesticides and growth regulators used in the production of economic plants. (Prerequisites Chem. 1612 and Pl. Sc. 1420.)

1479. **Crop Ecology.** Credit 3(3-0)  
(Formerly Crop Science 501)

The physical environment and its influence on crops; geographical distribution of crops.

1480. **Breeding of Crop Plants.** Credit 3(2-2)  
(Formerly Crop Science 502)

Significance of crop improvements in the maintenance of crop yields; application of genetic principles and techniques used in the improvement of crops; the place of seed certification in the maintenance of varietal purity.

1481. **Special Problems in Crops.** Credit 3(3-0)  
(Formerly Crop Science 503)

Designed for students who desire to study special problems in crops. Repeatable for a maximum of six credits. By consent of instructor.

1482. **Research Design and Analysis.** Credit 3(2-2)  
(Formerly Crop Science 505)

Experimental designs, methods and techniques of experimentation; application of experimental design to plant and animal research; interpretation of experimental data. (Prerequisite Ag. Econ. 1184 or Math. 3624.)

## COURSES IN EARTH SCIENCE

### Undergraduate

1429. **Elements of Physical Geology.** Credit 3(2-2)  
(Formerly Earth Science 211)

Relation of geologic principles in the development of a balanced concept of the earth and earth history; identification of rocks and minerals; weathering, water and mineral resources; sediments, metamorphosis and volcanism; land forms. (Prerequisites Chem. 1611 or consent of instructor.)

1430. **Elements of Weather and Climate.** Credit 3(2-2)  
(Formerly Earth Science 212)

A study of the fundamental elements of weather conditions as revealed in world patterns of climatic types. This course surveys the types of land forms and make applications to problems in engineering, military science and in planning for agricultural, urban and regional developmental projects. (Prerequisites Ea. Sc. 1429; Soil Sc. 1438, or consent of instructor.)

1448. **Aerial Photointerpretation.** Credit 3(2-2)  
(Formerly Earth Science 343)

The interpretation of aerial photography as an aid to the study of terrains of all types. This course surveys the types of land forms and make applications to problems in engineering, military science and in planning for agricultural, urban and regional developmental projects. (Prerequisites Ea. Sc. 1429; Soil Sc. 1438 or consent of instructor.)

## COURSES IN HORTICULTURE

### Undergraduate

1408. **Amateur Floriculture.** Credit 3(2-2)  
(Formerly Hort. 112)

General principles of growing flowers on a small scale in small greenhouses, home, school and public buildings; growing flowers outside for landscape effect and cutting.

1434. **Plant Propagation.** Credit 3(2-2)  
(Formerly Hort. 230)

Study of types, construction, and management of propagation structures; fundamental principles of propagation by seed, cuttage, budding, grafting, and layerage. (Prerequisite: Pl. Sc. 1400.)

1433. **Greenhouse Construction and Management.** Credit 4(2-4)  
(Formerly Hort. 223)

Location, maintenance and operation of greenhouses. Emphasis on environmental controls, crop rotation, production problems, and business management. (Prerequisite Pl. Sc. 1400.)

1435. **Principles of Landscape Design.** Credit 3(2-2)  
(Formerly Hort. 235)

Fundamentals of design of planning the arrangement of small properties, such as homes, schools, small parks and playgrounds.

- 1449. Commercial Flower Production.** Credit 3(2-2)  
(Formerly Hort. 332)

Culture of floriculture crops in the greenhouse and out-of-doors with emphasis on out flowers and outside bedding plants. Special attention given to seasonal production. (Prerequisite Hort. 1434.)

- 1450. Commercial Flower Production.** Credit 3(2-2)  
(Formerly Hort. 331)

Culture of floriculture crops in the greenhouse with emphasis on pot plants and conservatory plants. Special attention given to seasonal production. (Prerequisite Hort. 1434.)

- 1452. Plant Materials and Landscape Maintenance.** Credit 3(2-2)  
(Formerly Hort. 335)

Identification, merits, adaptability, and maintenance of shrubs, trees, and vines used in landscape planting; seasonal operations, such as a lawn building, planting trees, shrubs, bulbs, and perennials. (Prerequisite Hort. 1434, 1435.)

- 1453. Plant Materials and Planting Design.** Credit 3(2-2)

Continuation of Horticulture 1452 with added emphasis on plant combinations and use of plants as design elements. (Prerequisite Hort. 1452.)

- 1454. Nursery Management.** Credit 3(2-2)  
(Formerly Hort. 341)

Planning, operations and methods used by wholesale, retail, and landscape nurseries. Emphasis on cultural practices, records and selling techniques. (Prerequisite Hort. 1434.)

- 1467. Basic Floral Design.** Credit 3(1-4)  
(Formerly Hort. 442)

Essentials of flower arrangement and plant decorations for the home, office, hospital, school and church.

- 1468. Flower Shop Management.** Credit 3(2-2)  
(Formerly Hort. 443)

Designing, planning, handling of merchandise, buying and selling methods, and general policies.

- 1469. Landscape Design and Construction.** Credit 3(0-6)  
(Formerly Hort. 445)

Problems in design of land areas with emphasis on orientation, arrangement, and circulation. Instruction in planning, presentation, cost accounting, and construction. (Prerequisites Hort. 1435; Ag. Engr. 1403.)

- 1470. Landscape Design and Construction.** Credit 3(0-6)  
(Formerly Hort. 446)

Continuation of Hort. 1470. Problems in design of larger land areas involving more complex features; practice in landscape model construction. (Prerequisite Hort. 1469.)

#### **Advanced Undergraduate and Graduate**

- 1483. Special Problems.** Credit 3(3-0)  
(Formerly Hort. 501)

Work along special lines given largely by the project method for advanced undergraduate and graduate students who have the necessary preparation.



**COURSES IN SOIL SCIENCE****Undergraduate**

1438. **Fundamentals of Soil Science.** Credit 4(2-4)  
(Formerly Soil Sc. 223)

The fundamental nature and properties of soils and introductory treatment of soil genesis, morphology, and classification and land use.

1456. **Soil Pedology.** Credit 3(2-2)

Factors and processes in soil formation and the general principles upon which the classification of soils is based. This course will be offered during the fall terms of odd numbered years, beginning in 1967. (Prerequisites: Soil Science 1438 and Chemistry 1612.)

1457. **Soil Fertility.** Credit 3(3-0)  
(Formerly Soil Sc. 332)

General principles of fertility; the physical, chemical, and biological factors affecting soil fertility, crop production, conservation cropping, and crop rotations. (Prerequisites Soil Sc. 1438; Chem. 1611 or consent of instructor.)

1458. **Soil Fertility Laboratory.** Credit 2(0-4)  
(Formerly Soil Sc. 333)

Analytical and diagnostic procedures in studying soil fertility problems. (Prerequisites Chem. 1612; Soil Sc. 1438 and 1457 or consent of instructor.)

1472. **Soil Physics.** Credit 4(2-4)

A study of the influence of mineralogical composition and texture, and temperature, aeration and moisture relations of the soil on its physical condition. This course will be offered during the spring terms or even numbered years, beginning in 1968. (Prerequisites: Soil Science 1457, Chemistry 1612, Mathematics 3613, and consent of instructor.)

1473. **Soil Genesis and Classification.** Credit 4(2-4)  
(Formerly Soil Sc. 442)

Soil genesis, morphology and classification of the major soil groups of the United States; techniques of making and using soil surveys. (Prerequisites Soil Sc. 1438 and 1456.)

1474. **Soil Chemistry.** Credit 4(2-4)

Application of physico-chemical principles to soil studies including crystal structure, types of bonding, nutrient fixation, ionic equilibria and electrode. (Prerequisites: Chem. 1612, Soils 1438, and the consent of the instructor.) This course will be taught during the Spring Semester of years ending with an odd number beginning during the Spring of 1967.

**Advanced Undergraduate and Graduate**

1484. **Special Problems in Soils.** Credit 3(3-0)  
(Formerly Soil Sc. 504)

Research problems in soils for advanced students. (By consent of instructor.)

**GRADUATE COURSE IN CROP SCIENCE**

1491. **Grass Land Ecology.** (Formerly Crop Sc. 634) Credit 3(3-0)

**GRADUATE COURSES IN EARTH SCIENCE**

- |  |               |
|--|---------------|
| 1494. The Physical Universe. (Formerly Earth Sc. 601)                | Credit 3(3-0) |
| 1495. Physical Geology. (Formerly Earth Sc. 602)                     | Credit 3(3-0) |
| 1496. Conservation of Natural Resources.<br>(Formerly Earth Sc. 604) | Credit 3(3-0) |

**GRADUATE COURSE IN SOILS**

- |   |               |
|---|---------------|
| 1499. Soils of North Carolina. (Formerly Soils 631) | Credit 3(2-2) |
|---|---------------|

**DEPARTMENT OF HOME ECONOMICS**

DR. CECILE H. EDWARDS, *Chairman*

The curricular requirements of the Department of Home Economics have been selected to provide a background for the development of competencies and values which will:

1. Make possible satisfying personal, group, and family relationships as a basis for active participation in a democratic society;
2. Lead to the enrichment of home and family living through the appreciation and use of art and advances in science and technology;
3. Develop understanding and appreciation of varying cultural backgrounds; and
4. Prepare the individual for gainful employment in one of the major areas of the profession.

Home Economics courses are not restricted to majors in the Department. All introductory courses may be taken by any student at the University. Admittance to other courses may be secured upon receiving approval of the instructor.

**MAJOR AREAS IN THE DEPARTMENT**

The department offers the Bachelor of Science degree with majors in the following areas: (1) Child Development—C D; (2) Clothing, Textiles and Related Art—CTA; (3) Foods and Nutrition—F N; (4) Home Economics Education—H Ec; and (5) Institution Management—I M.

For information concerning the graduation requirements for each of the five areas consult the program listings for the desired major.

The selection of electives must be approved by the student's adviser.

**PROGRAM FOR CHILD DEVELOPMENT MAJORS**

This program is designed to provide a broad knowledge of children through the study of their development and relationships.

Graduates with a major in Child Development qualify (1) to become preschool teachers and (2) for admission to graduate study.

**Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2100 .....	1	—
English 2401, 2402 .....	4	4
Mathematics 3601, 3602 .....	3	3
History 2800, 2801 .....	3	3
Physical Education 2702, 2704 .....	1	1
Clothing, Textiles and Related Art 1802 ....	3	—
Home Economics 1801 .....	1	—
Physical Science 1601 .....	—	3
Health Education 2700 .....	—	2
	<u>16</u>	<u>16</u>

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Humanities 2434, 2435 .....	3	3
Psychology 2320 .....	3	—
Child Development 1921, 1922 .....	3	3
Child Development 1925 .....	—	3
Zoology 1512, 1533 .....	4	4
Art 3226 .....	3	—
Sociology 2831 .....	—	3
	<u>16</u>	<u>16</u>

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Child Development 1923, 1926 .....	8	—
Foods and Nutrition 1829 .....	—	3
Home Economics 1920, 1940 .....	3	3
Home Economics 1941 .....	—	3
English 2425 .....	2	—
Child Development 1927, 1952 .....	—	8
Anthropology 2820 .....	3	—
Education 2121 .....	2	—
	<u>18</u>	<u>17</u>

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Child Development 1968, 1969, 1970, 1972 or Electives .....	12-14	12-14
	<u>12-14</u>	<u>12-14</u>

**PROGRAM FOR CLOTHING, TEXTILES AND RELATED ART MAJORS**

This major leads to professional opportunities in clothing, textiles, fashions and businesses.

**Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2100 .....	1	—
Home Economics 1801 .....	1	—
Mathematics 3601, 3602 .....	3	3
Art 3200 .....	3	—
Clothing, Textiles and Related Art 1802, 1824, 1820 .....	5	3
English 2401, 2402 .....	4	4
Foods and Nutrition 1803 .....	—	3
History 2800 .....	—	3
Physical Education 2702, 2704 .....	1	1
	<hr/> 18	<hr/> 17

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
History 2801 .....	3	—
Clothing, Textiles and Related Art 1821, 1822, 1843 .....	4	6
Art 3226 .....	3	—
Humanities 2434, 2435 .....	3	3
Chemistry 1611, 1614 .....	4	4
Home Economics 1920 .....	—	3
	<hr/> 17	<hr/> 16

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Clothing, Textiles and Related Art 1823, 1842, 1844 .....	3	7
Psychology 2320 .....	3	—
Economics 2840 .....	3	—
Home Economics 1940, 1941 .....	3	3
Sociology 2831 .....	—	3
French 2500 .....	3	—
Electives .....	0-2	2-5
	<hr/> 15-17	<hr/> 15-18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Anthropology 2820 .....	3	—
Health Education 2700 .....	2	—
Clothing, Textiles and Related Art 1871, 1861 .....	—	7
Electives .....	10-13	5-7
	<hr/> 15-17	<hr/> 12-14

**PROGRAM FOR FOODS AND NUTRITION MAJORS**

The major in foods and nutrition is designed to provide a strong scientific background for the interpretation and creative use of a knowledge of foods and nutrition in positions as clinical nutritionists, assistant technicians in food testing and research, and in preparation for graduate study. Study on the graduate level leads to opportunities as nutrition specialists; food specialists in journalism, radio and television; public health' nutritionists; food technologists; college teachers; and, research technicians in foods and nutrition.

**Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2100 .....	1	—
English 2401, 2402 .....	4	4
Clothing, Textiles and Related Art 1802 ...	2	—
Foods and Nutrition 1830 .....	—	4
Home Economics 1801 .....	—	—
Mathematics 3611, 3613 .....	4	4
Physical Education 2701 or 2702, 2703 or 2704 .....	1	1
History 2800, 2801 .....	3	3
Health Education 2700 .....	—	2
	<hr/> 16	<hr/> 18

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1611, 1612 .....	4	4
Foods and Nutrition 1831 .....	2	—
Humanities 2423, 2435 .....	3	3
Foods and Nutrition 1827, 1828 .....	3	3
Zoology 1512, 1533 .....	4	4
English 2425 .....	2	—
Psychology 2320 .....	—	3
	<hr/> 18	<hr/> 17

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1621, 1622 .....	5	5
Bacteriology 1524 .....	4	—
Foods and Nutrition 1829, 1846 .....	—	6
Home Economics 1940 .....	3	—
Home Economics 1941 .....	—	3
Physics 3801 .....	3	—
Electives .....	3	3
	<hr/> 17	<hr/> 16



**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1623, 1624 .....	4	3
Foods and Nutrition 1845 .....	—	2
Foods and Nutrition 1877, 1878 .....	3	2
Foods and Nutrition 1879 .....	—	1
Foods and Nutrition 1880 .....	—	3
Electives .....	5	—
	<hr/> 12	<hr/> 11

**PROGRAM FOR HOME ECONOMICS EDUCATION MAJORS**

The four-year curriculum in Home Economics Education is designed to prepare graduates for positions as (1) high school homemaking teachers, or (2) county home economics extension agents.

The selection of electives should be made in consultation with the student's adviser.

**Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
History 2800, 2801 .....	3	3
Mathematics 3601, 3602 .....	3	3
Physical Education 2702, 2704 .....	1	1
Zoology 1512, 1533 .....	4	4
Home Economics 1801 .....	1	—
Clothing, Textiles and Related Art 1802 ....	—	2
Education 2100 .....	1	—
	<hr/> 17	<hr/> 17

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Health Education 2700 .....	2	—
Humanities 2434, 2435 .....	3	3
Psychology 2320 .....	—	3
Chemistry 1611, 1614 .....	4	4
Education 2120, 2121 .....	2	2
Art 3226 .....	3	—
Foods and Nutrition 1830 .....	—	4
Clothing, Textiles and Related Art 1820 ....	3	—
	<hr/> 17	<hr/> 16

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Foods and Nutrition 1827 .....	3	—
Clothing, Textiles and Related Art 1821 ...	—	4
English 2425 .....	2	—
Child Development 1921 .....	3	—
Physics 3801 .....	3	—
Economics 2840 .....	—	3
Home Economics 1920, 1941 .....	3	3
Education 2154 .....	—	3
Home Economics 1945 and Foods and Nutrition 1831 or Elective .....	—	4-5
Home Economics 1940 .....	3	—
	<hr/> 17	<hr/> 17-18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Home Economics 1960 .....	3	—
Home Economics 1943 .....	—	2
Psychology 2341 .....	3	—
Education 2151, 2140, 2161 .....	3	9
Home Economics 1942 .....	—	2
Home Economics 1945 and Foods and Nutrition 1831 or Elective .....	4-5	—
	<hr/> 13-14	<hr/> 13

**PROGRAM FOR INSTITUTION MANAGEMENT MAJORS**

The Institution Management program is designed to meet the academic requirements of The American Dietetic Association. Graduates are eligible for internships in institutions that have received approval from the Association.

Institution Management offers excellent professional opportunities for men and women who are interested in the service of food for large groups of people. Two options are offered:

1. **OPTION A**—for student interested in Therapeutic or Administrative Dietetics in a hospital or clinic. It prepares the graduates for a Clinical Internship or graduate study.
2. **OPTION B**—for students interested in Food Service Administration in hospitals, business, industry or educational institutions. Selection of this option qualifies the graduate for: (1) employment in assistant supervisory positions in food businesses or industrial plant cafeterias, (2) the operation of private businesses, (3) approved Food Service Administration Internships, or (4) graduate study in hotel or food administration.

**OPTION A AND B****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2100 .....	1	—
English 2401, 2402 .....	4	4
Chemistry 1611, 1614 .....	4	4
Home Economics 1801 .....	—	1
Mathematics 3601, 3602 .....	3	3
History 2800, 2801 .....	3	3
Physical Education 2701 or 2702, 2703 or 2704 .....	1	1
	<hr/> 16	<hr/> 16

**OPTION A****Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1624 .....	—	3
Humanities 2434, 2435 .....	3	3
Foods and Nutrition 1827, 1828 .....	3	3
Foods and Nutrition 1830 .....	—	4
Institution Management 1924, 1925, 1946 ..	6	4
Psychology 2320 .....	3	—
Clothing, Textiles and Related Art 1802 ....	2	—
	<hr/> 17	<hr/> 17

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Zoology 1512, 1533 .....	4	4
Institution Management 1948 .....	—	4
Institution Management 1947 .....	5	—
Psychology 2340 .....	3	—
Bacteriology 1524 .....	—	4
Foods and Nutrition 1831 .....	2	—
Electives .....	3	3
	<hr/> 17	<hr/> 15

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Foods and Nutrition 1869 .....	—	3
Institution Management 1964 .....	—	3
Home Economics 1940, 1941 .....	3	3
Electives .....	9	6
	<hr/> 12	<hr/> 15

**OPTION B****Sophomer Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Humanities 2434, 2435 .....	3	3
Zoology 1512, 1533 .....	4	4
Foods and Nutrition 1827, 1830 .....	3	4
Institution Management 1925, 1946 .....	6	4
Electives .....	2	2
	<hr/> 17	<hr/> 17

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Psychology 2320 .....	—	3
Institution Management 1948 .....	—	4
Institution Management 1947 .....	3	—
Accounting 3321, 3322 .....	3	3
Economics 2840 .....	3	—
Business Administration 3325 .....	3	—
Bacteriology 1524 .....	—	4
Electives .....	2	2
Foods and Nutrition 1831 .....	2	—
	<hr/> 16	<hr/> 16

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Business Administration 3369 .....	3	—
Institution Management 1949, 1964 .....	3	3
Home Economics 1941 .....	—	3
Accounting 3341, 3344 .....	3	3
Electives .....	5	5
	<hr/> 14	<hr/> 14

**COURSES IN CHILD DEVELOPMENT****Undergraduate**

1921. Child Development I. Credit 3(3-0)  
(Formerly H. Ec. 1921)

A cross-cultural study of the behavior and development of the young child in a familial context.. (A preschool laboratory experience is required for home economics education majors.)

1922. Child Development II. Credit 3(3-0)  
(Formerly H. Ec. 1922)

A comprehensive study of physical, social and psychological development from middle childhood through adolescence. Prerequisite: Child Development I.

**1923. Infant Development.**

Credit 3(3-0)

This course focuses upon the importance of infancy as a crucial period in human development and covers the following categories: prenatal, preinatal and neonatal development; infant learning and copying; personality; and, infant care and deprivation. Prerequisite: Child Development 1921.

**1925. Introduction to Child Study.**

Credit 3(3-0)

(Formerly N.S.&amp;K. Ed. 1925)

Historical background and present-day philosophies of child study and early childhood education.

**1926. Creative Activities for Young Children.**

Credit 5(5-0)

(Formerly N.S.&amp;K. Ed. 1926 and 1951)

This course is planned to: (1) teach the importance of stimulating the exploratory behavior of children; (2) encourage the college student in the continuous experimentation necessary for work with young children; (3) use creative media; and, (4) find new ways to teach key concepts to preschool children. Prerequisite: Child Development 1921.

**1927. Literature and Language Arts for the Young Child.**

Credit 3(3-0)

(Formerly N.S.&amp;K. Ed. 1927)

A survey of media and methodology relating to literature and language arts for preschool instruction.

**1952. Science and Social Studies for the Young Child.**

Credit 5(5-0)

(Formerly N.S.&amp;K. Ed. 1952)

A study of the basic concepts from the physical, mathematical and social sciences necessary for the instruction of young children.

**1968. Preschool Methods.**

Credit 3(3-0)

(Formerly N.S.&amp;K. Ed. 1968)

A study of the application of child development theories to the organization of preschool programs and curriculum development.

**1969. Observation and Directed Teaching in the Prechool.**

Credit 6(2-8)

(Formerly N.S.&amp;K. Ed. 1969)

Observation and guided teaching experiences in the preschool laboratory.

**Advanced Undergraduate and Graduate****1970. Measurement and Evaluation in Child Development.**

Credit 3(3-0)

(Formerly N.S.&amp;K. Ed. 303)

A study of the measurement and evaluation of young children's growth and development. Laboratory experiences are provided. Prerequisites: Psychology 2320 and permission of instructor.

**1972. Senior Seminar.**

Credit 2(2-0)

(Formerly N.S.&amp;K. Ed. 1971 and 1972)

A review of recent research findings and discussion of current trends and information related to the field of child development. Concurrent with Child Development 1969.

**COURSES IN CLOTHING, TEXTILES AND RELATED ARTS****Undergraduate****1802. Clothing for the Family.**

Credit 2(2-0)

(Formerly C.T.R.A. 101)

A study of the individual clothing needs of family members; wardrobe planning; socio-economic and psychological aspects of clothing; buying principles, procedures and practices.

1820. **Textiles.** Credit 3(2-2)  
(Formerly C.T.R.A. 201)

Textile fibers, their sources, characteristics and production into fabric, the social, economic and hygienic aspects and care of clothings.

1821. **Family Clothing Construction.** Credit 4(1-6)  
(Formerly C.T.R.A. 202)

Fundamental principles of clothing construction based on the use of the commercial pattern.

A consideration of the clothing needs of family members with laboratory experiences to meet individual needs. Prerequisite: CTA 1802.

### **DRESS DESIGN AND PATTERN STUDY**

1822. **Dress Design and Pattern Study.** Credit 3(1-4)  
(Formerly C.T.R.A. 203)

A study of flat pattern making and variations in commercial patterns.

1823. **Advanced Clothing Construction.** Credit 4(1-6)  
(Formerly C.T.R.A. 204)

The application of art principles in creating dress designs by draping methods. Emphasis on the use of new fabrics and trends as creative expression in clothing construction.

1824. **History of Costume.** Credit 3(3-0)  
(Formerly C.T.R.A. 205)

A study of the history of costume from ancient to modern times.

1826. **Special Problems of Clothing or Textiles.** Credit 3(0-6)  
(Formerly C.T.R.A. 501)

Independent study on special problems in clothing, textiles or related art.

1842. **Millinery.** Credit 3(1-4)  
(Formerly C.T.R.A. 306)

An introduction to the use of various millinery equipment and materials.

1843. **Home Furnishings Laboratory.** Credit 3(1-4)  
(Formerly C.T.R.A. 307)

Laboratory experience in the making of slipcovers, draperies, and other fabric furnishings.

1844. **Tailoring for Women.** Credit 4(1-6)  
(Formerly C.T.R.A. 308)

A study of the principles of custom tailoring as they apply to women's coats and suits. Laboratory experiences in the construction of women's coats and suits. Prerequisite: CTA 1823.

1861. **Workroom Techniques in Clothing, Textiles or Related Art.** Credit 6(0-12)  
(Formerly C.T.R.A. 402)

A course designed to give the student practical experiences in one of the areas of clothing, textiles or related art.

### **Advanced Undergraduate and Graduate**

1870. **Fashion Coordination.** Credit 1(1-0)  
(Formerly C.T.R.A. 502)

A study of the factors which influence the fashion world; trends, designers, centers and promotion. Field trips to fashion centers.



1871. Seminar in Clothing, Textiles and Related Art. Credit 1(1-0)  
(Formerly C.T.R.A. 503)

A study of current trends in the field of Clothing, Textiles, and Related Art.

1872. Economics of Clothing and Textiles. Credit 2(2-0)  
(Formerly C.T.R.A. 504)

A study of the economic aspects of clothing and household textiles as they relate to family needs and resources in their quest for maximum satisfaction and serviceability.

1873. Advanced Textiles. Credit 3(2-2)  
(Formerly C.T.R.A. 505)

A study of the physical and chemical properties of textile fibers and fabrics with emphasis on recent scientific and technological developments.

## COURSES IN FOODS AND NUTRITION

### Undergraduate

1803. Family Foods. Credit 3(2-2)  
(Formerly F&N 101)

Principles of food preparation nutrition; laboratory experiences in the selection, preparation, and serving of food to meet the nutritional needs of the family; role of diet in the maintenance of health and well being.

1827. Nutrition and Dietetics. Credit 3(2-2)  
(Formerly F&N 201)

The application of the scientific principles of nutrition to the planning of diets for various age groups. Prerequisites: Chem. 1612, 1614 or 1616.

1828. Diet Therapy. Credit 3(2-2)  
(Formerly F&N 205)

A study of dietary modifications necessary in the treatment of pathologic conditions. Prerequisite: F&N 1827.

1829. Child Nutrition. Credit 3(2-2)  
(Formerly F&N 204)

A study of the principles of nutrition and their application to the feeding of children in family and nursery school groups.

1830. Food Preparation. Credit 4(2-4)  
(Formerly F&N 202)

The application of scientific principles to food preparation and preservation. Prerequisites: Chem. 1612 and 1614 or concurrent.

1831. Meal Planning and Table Service. Credit 2(1-2)  
(Formerly F&N 206)

Planning of meals with consideration of the economic and nutritional needs of all family members. Laboratory experiences provide opportunity to develop skill in the judgment and use of the more recent food products and equipment as time, money, and energy-saving measures. Prerequisite: F&N 1830.

1845. Nutrition Education. Credit 3(2-2)  
(Formerly F&N 301)

A course designed to assist in the development of nutrition education programs in the school and community.

1846. **Experimental Cookery.** Credit 3(1-4)  
(Formerly F&N 302)

A study of the chemical and physical composition and behavior of foods.

#### **Advanced Undergraduate and Graduate**

1877. **Special Problems in Foods and Nutrition.** Credit 3(0-6)  
(Formerly F&N 501)

Individualized work on special problems in foods and nutrition.

1878. **Recent Developments in Foods and Nutrition.** Credit 2(2-0)  
(Formerly F&N 502)

A study of recent research in foods and nutrition through discussion of reports in current scientific journals.

1879. **Seminar in Foods and Nutrition.** Credit 1(1-0)  
(Formerly F&N 503)

History of foods and nutrition; past and present theories and methods; specialists and their contributions.

1880. **Advanced Nutrition.** Credit 3(3-0)  
(Formerly F&N 504)

Advanced discussion of the roles of vitamins, minerals, protein, fat, and carbohydrate in the body and their interrelationships. Prerequisites: F&N 1827, and Chemistry 1624 or concurrent.

### **COURSES IN HOME ECONOMICS**

#### **Undergraduate**

1801. **Introduction to Home Economics.** Credit 1(1-0)  
(Formerly H. Ec. 100)

A course designed to assist students in making personal adjustments to college living; an introduction to the broad areas of home economics; a study of the some economics curricula and professional opportunities in the field.

1804. **The Individual and His Family.** Credit 2(2-0)  
(Formerly H. Ec. 101)

A study of the interrelationships of the individual and his family throughout the life cycle with emphasis on health as it is related to the well-being of the family.

1805. **Social Usage.** Credit 1(1-0)  
(Formerly H. Ec. 102)

A course intended for the person who desires to enrich living with graciousness and accepted standards in our present day society.

1920. **Contemporary Housing.** Credit 3(2-2)  
(Formerly H. Ec. 201)

Consideration of the present day housing needs of the family. Laboratory experiences in the selection, use, and care of furnishings and equipment.

1940. **Consumer Problems.** Credit 3(3-0)  
(Formerly H. Ec. 301)

Basic principles involved in managing personal and family finances with emphasis on buying and consumption practices.

1941. **Marriage and Family Relations.** Credit 3(3-0)  
(Formerly H. Ec. 302)

A study of the interpersonal relationships in contemporary family life; emphasis on the changing nature of family adjustments, goals, values, and roles.

1942. **Household Equipment.** Credit 2(1-2)  
(Formerly H. Ec. 303)

The application of principles and techniques relating to selection, care, and use of household equipment.

1943. **Interior Design.** Credit 2(1-2)  
(Formerly H. Ec. 304)

A study of residential interiors with emphasis on color, design, style, furniture, lighting and accessories.

1944. **Home Furnishings.** Credit 2(1-2)  
(Formerly H. Ec. 305)

A study of the selection, arrangement, use and care of home furnishings.

1945. **Home Management Residence.** Credit 3(1-4)  
(Formerly H. Ec. 306)

Designed to give students experiences in applying the principles of management and interpersonal relations to group living. Prerequisites: H. Ec. 1940, F&N 1831 or concurrent.

1960. **Demonstration Techniques.** Credit 3(1-4)  
(Formerly H. Ec. 401)

The application of the principles of demonstration, techniques to all phases of home economics. Practical experience in conducting adult classes.

### **Advanced Undergraduate and Graduate**

1973. **Special Problems in Home Economics.** Credit 2(0-4)  
(Formerly H. Ec. 501)

Problems in the various areas of Home Economics may be chosen for individual study.

1974. **Seminar in Home Economics Education.** Credit 2(1-2)  
(Formerly H. Ec. 503)

Consideration of problems resulting from the impact of social change on the various fields of Home Economics in relation to the secondary school vocational homemaking programs.

## **COURSES IN INSTITUTION MANAGEMENT**

### **Undergraduate**

1924. **Institution Organization and Management I.** Credit 3(3-0)  
(Formerly I. M. 201)

A study of the organization, management and administration of food service establishments.

1925. **Institution Organization and Management II.** Credit 3(3-0)  
(Formerly I. M. 124)

A continuation of I. M. 1924 with emphasis on personnel management.

1946. **Institution Purchasing.** Credit 4(3-2)  
(Formerly I. M. 301)

A study of the problems involved in the purchase of food and other expendable supplies for food service establishments.

1947. **Institution Equipment.** Credit 5(3-4)  
(Formerly I. M. 302)

A study of the selection, care and use of equipment for quantity food preparation and service. Interpretation of blueprints and specifications will be considered.

1948. **Quantity Cookery.** Credit 4(1-6)  
(Formerly I. M. 303)

The application of the principles of cookery to the preparation and service of food for group feeding with emphasis on menu planning, work schedules, cost and portion control. Prerequisite: F&I 1830.

1949. **Advanced Quantity Cookery.** Credit 3(2-2)  
(Formerly I. M. 304)

Continuation of I. M. 1948.

1950. **Catering.** Credit 3(1-4)  
(Formerly I. M. 306)

Designed to improve skill and technique in the preparation of specialty dishes and in planning, preparing and serving for entertainments. Consideration will be given to the foreign influence on gourmet cookery. Prerequisite: F&N 1830 or consent of instructor.

1964. **Field Experience in Institution Management.** Credit 3(0-6)  
(Formerly I. M. 401)

Individualized experiences in off-campus food service establishments.

#### **Advanced Undergraduate and Graduate**

1975. **Special Problems in Institution Management.** Credit 2(0-4)  
(Formerly I. M. 501)

Individual work on special problems in institution management.

1976. **Readings in Institution Management.** Credit 1(1-0)  
(Formerly I. M. 502)

A study of institution management through reports and discussion of articles in current trade periodicals and scientific journals.

1977. **Seminar in Institution Management.** Credit 1(1-0)  
(Formerly I. M. 503)

Discussion of problems involved in the organization and management of specialized food service areas.

## **SCHOOL OF ARTS AND SCIENCES**

ARTHUR F. JACKSON, *Dean*

The broad purpose of the School of Arts and Sciences is two fold: (1) to offer courses in the humanities, social sciences and the natural sciences which comprise a part of the program of all students in the university and (2) to offer programs in cooperation with other schools and departments leading to the Bachelor of Science degree.

The School of Arts and Sciences serves three categories of students enrolled in the University: Those who choose major and minor fields of concentration in the humanities, social sciences or the natural sciences,

those who plan for professional careers in such fields as law, medicine, dentistry, the ministry and related fields, and those who wish to broaden their general education.

The School of Arts and Sciences is organized into the following divisions: Division of Humanities, Division of Natural Science and Mathematics, and the Division of Social Science.

The School offers the Bachelor of Science degree with the following undergraduate majors: Art Education, Design, Painting, English, English Education, French, French Education, Music Education-Voice, Music Education-Instrumental, Biology, Biology Education, Chemistry, Chemistry Education, Mathematics Education, Physics Education, Economics, History, History Education, Political Science, Social Studies, Sociology and Social Welfare.





# SCHOOL OF ARTS AND SCIENCES



# **DIVISION OF HUMANITIES**

- **DEPARTMENT OF ART**
- **DEPARTMENT OF ENGLISH**
- **DEPARTMENT OF FOREIGN LANGUAGES**
- **DEPARTMENT OF MUSIC**

## DEPARTMENT OF ART

LEROY F. HOLMES, JR., *Chairman*

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The objectives of the Department of Art are simple and direct; to guide the student through carefully planned classroom, studio, and working experiences, to develop his aesthetic perceptivity, technical competency, and to broaden his general education.

Beginning with the belief that human beings are creative; this creative impulse can serve human needs, and that an art curriculum can motivate and nourish the development of creative ability, the art curricula seek to embrace and utilize both functional and experimental approaches in the development of that creative ability. This philosophy is reflected in three areas of concentration—Art Education, Design, Painting, and also in the elective offerings in art appreciation, art history, and studio arts.

The four-year programs leading to the Bachelor of Science Degree in Art are designed to integrate studio major courses and academic courses. The fundamentals of art coupled with courses outside the area of art enrich and broaden the comprehension of creative experience and lay a foundation for appreciation, production, and teaching of those elements of human experience and expression known as the Fine Arts.

The student must complete 136 semester hours of credit for graduation. Of this total, depending upon area of concentration, a minimum of 49 or 58 semester hours must be in art courses. In the Design or Painting Option, no academic minor is required since the degree presupposes both a major and minor in art.

### PROGRAM IN ART EDUCATION

#### 136 Semester Hours

##### Undergraduate

##### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Art 3200, 3201 .....	3	3
English 2401, 2402 .....	4	4
Education 2100 .....	1	—
Health Education 2700 .....	—	2
Mathematics 3601, 3602 .....	3	3
Physical Education .....	1	1
Social Science 2800, 2801 .....	3	3
Electives .....	2	1
Air or Military Science or Electives .....	1	1
	18	18

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Art 3222 .....	—	3
Art 3224, 3225 .....	2	2
Art 3226, 3227 .....	3	3
Education 2120, 2121 .....	2	2
Foreign Language (French or German) ....	3	3
Humanities 2434, 2435 .....	3	3
Psychology 2320 .....	3	—
Electives or Air or Military Science .....	2	2
	—	—
	18	18

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Art 3229 .....	—	3
Art 3240 .....	2	—
Art 3241, 3243 .....	3	3
Art 3245, 3246 .....	3	3
Biological Science 1501 .....	—	4
Education 2154 .....	3	—
English 2425 .....	—	2
Physical Science 1601 .....	4	—
Free Electives .....	3	3
	—	—
	18	18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Art 3254 .....	3	—
Art 3259 .....	2	—
Art 3260 .....	2	—
Art 3264 .....	3	—
Art 3270 .....	3	—
Education 2140 .....	—	3
Education 2149 .....	—	3
Education 2161 .....	—	6
Psychology 2341 .....	3	—
	—	—
	16	12

**PROGRAM IN DESIGN****136 Semester Hours****Undergraduate****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Art 3200, 3201 .....	3	3
Art 3224, 3225 .....	2	2
Education 2100 .....	1	—
English 2401, 2402 .....	4	4
Health Education 2700 .....	—	2
Mathematics 3601, 3602 .....	3	3
Social Science 2800, 2801 .....	3	3
Electives or Air or Military Science .....	1	1
	<hr/> 17	<hr/> 18

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Art 3222 .....	3	—
Art 3226, 3227 .....	3	3
Art 3229 .....	—	3
Biological Science 1501 .....	—	4
Engineering Graphics 3701, 3702 .....	2	2
Humanities 2434, 2435 .....	3	3
Physical Science 1601 .....	4	—
Electives or Air or Military Sciences .....	2	2
	<hr/> 17	<hr/> 17

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Art 3228 .....	—	3
Art 3240 .....	2	—
Art 3241, 3242 .....	3	3
Art 3243 .....	—	3
Foreign Language (French or German) ....	3	3
Free Electives .....	3	3
	<hr/> 17	<hr/> 18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Art 3259 .....	2	—
Art 3260 .....	2	—
Art 3264, 3265 .....	3	3
Art 3245, 3246 .....	3	3
Art 3255, 3256 .....	3	3
Electives .....	4	6
	<hr/> 17	<hr/> 15

**PROGRAM IN PAINTING****136 Semester Hours****Undergraduate****Freshman Year**

Same as freshman year for Design Major.

**Sophomore Year**

Same as sophomore year for Design Major.

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Art 3228 .....	—	3
Art 3240 .....	2	—
Art 3241, 3242 .....	3	3
Art 3245, 3246 .....	3	3
Foreign Language (French or German) ....	3	3
Free Electives .....	3	3
Electives .....	2	3
	<hr/> 16	<hr/> 18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Art 3259 .....	2	—
Art 3260 .....	2	—
Art 3264, 3265 .....	3	3
Art 3268, 3269 .....	3	3
Electives .....	7	9
	<hr/> 17	<hr/> 15

**Art Minor**

Students may complete a minor in art by taking twenty-one semester hours. Nine semester hours in a sequence in one field, six semester hours in art history and appreciation, and six semester hours of art electives.

**COURSES IN ART****Undergraduate**

**3200. Basic Drawing and Composition.** Credit 3(0-6)  
(Formerly Art 111 and 331)

A study of the fundamental principles of drawing as a mode of visual expression. Selected problems involving basic consideration of line, form, space, and composition are presented for analysis and laboratory practice.

**3201. Lettering and Poster Design.** Credit 3(0-6)  
(Formerly Art 112)

A comprehensive study of the art of lettering. Projects involving the principles of layout, poster construction, and general advertising.



**3220. Graphic Presentation I.** Credit 2(0-4)

Exercises in various sketching techniques and media, including work with pencil, charcoal, crayon, and ink. Individual instruction is given using forms in nature and still-life for art and architectural presentation. Prerequisite: Sophomore Classification.

**3221. Graphic Presentation II.** Credit 2(0-4)

The theory of color mixture. Individual instruction in the techniques of watercolor, painting for architectural presentation. Studies from nature and still-life. Prerequisite: Art 3220.

**3222. Watercolor.** Credit 3(0-6)  
(Formerly Art 113)

Experimental exploration of all aqueous media: watercolor, casein, gouache; their possibilities and limitations.

**3224. Art Appreciation.** Credit 2(2-0)  
(Formerly Art 114)

An introduction to the study of art. Basic qualities of various forms of artistic expression are explained. Emphasis is placed on the application of art principles in every day life.

**3225. An Introduction to the History of Art.** Credit 2(2-0)  
(Formerly Art 115 and 116)

A general introduction to the history of art, beginning with an examination of ancient art in terms of their extant monuments and culminating with the analysis and comparison of representative works of today.

**3226. Design I.** Credit 3(0-6)  
(Formerly Art 217)

An introduction to visual design based upon an analysis of the aims, elements, principles, sources of design and their application in a variety of media.

**3227. Design II.** Credit 3(0-6)  
(Formerly Art 218 and 219)

A continuation of Art 217, with consideration given to three dimensional as well as two dimensional problems. Students are encouraged in the experimental use of materials and are required to find individual and complete solutions to problems through various stages of research, planning, and presentation. Emphasis is placed on technical perfection and the development of professional attitudes.

**3228. Color Theory.** Credit 3(0-6)

Problems directed toward understanding of color through creative experiment and application of color in visual organization. Use of slides, filmstrips, and trips.

**3229. Anatomy and Figure Drawing.** Credit 3(0-6)  
(Formerly Art 120 and 341)

A study of the human figure with emphasis on anatomy, body structure and proportions, draped figures at rest and in action. Special emphasis is given to detailed studies, composition, and stylization.

**3240. Renaissance Art.** Credit 2(2-0)  
(Formerly Art 326 and 327)

The study of the Renaissance in Italy and in major regions of northern and western Europe from 1300 to 1600.

**3241. Ceramics.**

(Formerly Art 337 and 338)

Introduction to basic techniques and processes of making ceramics. The student is taught hand building, slip casting, one piece molds, wheel throwing, decorating, glazing, and firing. Supplementary reading is required.

**3242. Basic Sculpture.**

Credit 3(0-6)

Introduction to sculptural form with the use of clay modeling, basic plaster techniques, wood, and metal in relation to the production of sculpture.

**3243. Jewelry and Metalwork.**

Credit 3(0-6)

(Formerly Art 339)

The design and technical essentials of jewelry making and metalwork. Prerequisite: Art 3227.

**3245. Materials and Techniques.**

Credit 3(0-6)

A study of the materials of the artist; supports, grounds, vehicles, binders, and protective covering. Exploration of the possibilities of various techniques of picture construction as a point of departure for individual expression.

**3246. Painting Techniques.**

Credit 3(0-6)

A continuation of 3245 with further work in projects that explore the esthetic opportunities and problems implicit in the use of varying media. Work in tempera, gouache, casein, polymers and lacquers.

**3250. Advertising Design I.**

Credit 3(0-6)

(Formerly Art 3260)

The study of basic tools of advertising design. Students are introduced to lettering techniques, layout problems, and reproduction processes for advertising, illustrations, posters, and television.

**3251. Advertising Design II.**

Credit 3(0-6)

(Formerly Art 3261)

Preparation and rendering of art work reproduction from rough idea layouts to finished illustration. Creative and technical class work is augmented by visits to commercial studios and printing companies. Prerequisite: Art 3250.

**3252. Commercial Art.**

Credit 3(0-6)

(Formerly Art 3262)

Illustration techniques. Different materials and renderings employed in advertising illustration, such as airbrush, colored inks, scratch board, etc.

Attention is given to techniques of printing in as far as they affect graphic design.

**3253. Typography.**

Credit 3(0-6)

(Formerly Art 3263)

The study of typography in relation to lettering, advertising, and design. Prerequisites: Art 3201 and 3250.

**3254. General Crafts.**

Credit 3(0-6)

(Formerly Art 3264)

Introduction to Craft Processes: weaving, metalwork, leather, etc.

- 3255. Fabric Design and Basic Weaving.** Credit 3(0-6)  
(Formerly Art 3265)

Basic principles of design as related to textiles and other flat surface decoration. The warping, threading, and weaving on small looms. History of fabric design and weaving. Prerequisite: Art 3226, 3227.

- 3256. Fabric Painting and Weaving.** Credit 3(0-6)  
(Formerly Art 3266)

The emphasis is on printing techniques and designers' tools to achieve effective results and on the use of the large looms for creating interesting fabrics. Study of contemporary trends in weaving. Prerequisites: Art 3226, 3227, 3255.

- 3257. Stage Design and Marionette Production I.** Credit 3(0-6)  
(Formerly Art 3267)

Problems in scene design and stage settings with experiments in stage lighting. Attention is given to the designing and construction of marionettes for simple plays. Field trips and attendance at plays are required.

- 3258. Stage Design and Marionette Production II.** Credit 3(0-6)  
(Formerly Art 3268)

A continuation of 3257.

- 3259. Baroque and Rococo Art.** Credit 2(2-0)  
(Formerly Art 3269)

The study of art in Europe from 1600 to 1800.

- 3260. Modern Art.** Credit 2(2-0)  
(Formerly Art 3270)

European and American art from about 1875 to the present.

- 3264. Introduction to Graphic Arts.** Credit 3(0-6)  
(Formerly Art 3274)

Introduction to printmaking processes. Production of prints in varied media: linoleum, woodcuts, drypoint, etchings, serigraphs, and lithographs.

- 3265. Lithography and Serigraphy.** Credit 3(0-6)  
(Formerly Art 3275)

Exploration of the techniques of lithography and serigraphy as a means of contemporary artistic expression. Emphasis of medium determined by individual interest.

- 3266. Senior Project.** Credit 3(0-6)  
(Formerly Art 3276)

Students who have given evidence of their ability to do serious individual work on a professional level may plan and carry out a project of his own choosing, subject approval and supervision of a faculty member.

- 3268. Painting I.** Credit 3(0-6)  
(Formerly Art 3278)

Creative painting in various media with emphasis on a modern approach and handling of medium. Research and experience in contemporary trends: abstract, non-objective, and abstract expressionism.

- 3269. Painting II.** Credit 3(0-6)  
(Formerly Art 3279)

Development of the student as a professional artist; advanced research and familiarization with contemporary trends, concepts, forms, and symbols. Emphasis on an original contemporary statement.

**Advanced Undergraduate and Graduate**

- 3270. Public School Art.** Credit 3(3-0)  
(Formerly Art 3280)

Study of materials, methods, and procedures in teaching art in public schools, special emphasis is placed on selection and organization of materials, seasonal projects, lesson plan.

- 3272. Seminar in Art History.** Credit 3(3-0)  
(Formerly Art 3282)

Investigation in depth of the background influences which condition stylistic changes in art forms by analyzing and interpreting works of representative personalities.

- 3273. Studio Techniques.** Credit 3(0-6)  
(Formerly Art 3283)

Demonstrations that illustrate and emphasize the technical potentials of varied media. These techniques are analyzed and discussed as a point of departure for individual expression.

- 3274. Ceramic Workshop.** Credit 3(0-6)  
(Formerly Art 3284)

Advanced studio problems and projects in ceramics with emphasis on independent creative work. The student is given opportunity for original research and is encouraged to work toward the development of a personal style in the perfection of technique.

- 3275. Printmaking.** Credit 3(0-6)  
(Formerly Art 3285)

Investigation of traditional and experimental methods in printmaking. Advanced studio problems in woodcut etching, lithography, and serigraphy.

- 3276. Sculpture.** Credit 3(0-6)  
(Formerly Art 3286)

Further study of sculpture with an expansion of techniques. Individual problems for advanced students.

- 3277. Project Seminar.** Credit 2(0-4)  
(Formerly Art 3287)

Advanced specialized studies in creative painting, design, and sculpture. By means of discussion and suggestions, this seminar intends to solve various problems which might arise in each work. Prerequisite: Consent of the instructor.

- 3278. Arts and Crafts.** Credit 3(0-6)  
(Formerly Art 3288)

Creative experimentation with a variety of materials, tools, and processes: projects in wood, metal, jewelry making, wood and metal construction, fabric design, leather craft, puppet making, and paper sculpture.

## DEPARTMENT OF ENGLISH

WALTER C. DANIEL, *Chairman*

The English Department assumes three responsibilities in the educational program of the institution. First, by means of composition courses, introductory literature courses, and laboratory courses, the department attempts to develop among the students the language skills required for intelligent communication. Second, the department provides the necessary information and training for prospective teachers of English. Third, the department offers the English majors a foundation of information and of knowledge of techniques which will enable them to pursue graduate study effectively.

### MAJOR PROGRAMS IN ENGLISH

The department offers courses in English language and literature, developmental reading, the humanities, and speech and drama. A major is offered in English and a minor in speech and drama. One may pursue a non-teaching major in the department, as the schedules of programs on the following pages indicate.

All English majors are required to study a foreign language through the intermediate courses 2520 and 2521. If a student has studied a foreign language for two years in high school, he may enroll in the intermediate course when he begins the language study at the university. Such a student would be required to complete only one year of foreign language study at the university.

Each English major is expected to become an active participant in at least one of the following organizations: the Fortnightly Club, the Richard B. Harrison Players, the *Register*, the Stylus, the Speakers' Bureau, the Speech Choir. As a junior or senior, the major serves for two semesters as an assistant to one of the instructors in the English Department.

### Teaching Major

#### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Math 3601, 3602 .....	3	3
Soc. Sc. 2800, 2801 .....	3	3
Biol. Sc. 1501 .....	4	—
Physical Sc. 1601 .....	—	4
Phy. Ed. 2701 or 2702, 2703 or 2704 .....	1	1
Education 2100 .....	1	—
Air or Military Science or Electives .....	1	1
English 2403 (one semester hour) .....	1	—
	18	16

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Foreign Language 2500, 2501, or 2520, 2521 .	3	3
Humanities 2434, 2435 .....	3	3
English 2436, 2425 .....	3	2
English 2437, 2438 .....	3	3
English 2451 .....	—	3
Psychology 2320 .....	3	—
Education 2120 .....	—	2
Health Education 2700 .....	2	—
Air or Military Science or Electives .....	2	2
	<hr/> 19	<hr/> 18

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2440 or 2461, 2462 .....	3	3
English 2455, 2456 .....	3	3
Foreign Language 2520, 2521 or electives ..	3	3
English 2458, 2452 .....	3	3
Education 2121, 2154 .....	2	3
History 2855 .....	3	—
Electives .....	3	3
	<hr/> 20	<hr/> 18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2441 .....	3	—
English 2457 .....	3	—
English 2475 .....	1	—
English 2442 or 2432 .....	3	—
Education 2341 .....	3	—
Education 2140 .....	—	3
Education 2144 .....	—	3
Education 2161 .....	—	6
English 2463 .....	2	—
Electives (ROTC) .....	3	3
	<hr/> 18	<hr/> 15
Total 141 hours		

**Non-Teaching Major****Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Foreign Language 2500, 2501, or 2520, 2521 .	3	3
Humanities 2434, 2435 .....	3	3
English 2436, 2425 .....	3	2
English 2437, 2438 .....	3	3
History 2855 .....	—	3
Psychology 2320 .....	3	—
Health Education 2700 .....	—	2
Air or Military Science .....	2	2
	<hr/> 17	<hr/> 18



**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2440 or 2461, 2462 .....	3	3
English 2455, 2456 .....	3	3
Foreign Language 2520, 2521 or electives ...	3	3
English 2450, 2451 .....	3	3
Electives .....	3	6
Humanities 2454 .....	3	—
	<hr/> 18	<hr/> 18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2441, 2452 .....	3	3
English 2457 .....	3	—
English 2458 .....	3	—
English 2475 .....	1	—
Electives .....	8	12
	<hr/> 18	<hr/> 15
Total 135 hours		

**The Teaching Minor**

Because most students who study in a minor field hope to be able to teach in that field if they should be unable to secure a job in their primary interest, the minor program is intended to furnish the student with a minimum foundation for the teaching of English in the junior or senior high school.

Course Requirements (28 hours): English 2436 (3), 2437 (3), 2438 (3), 2440 or 2461 (3), 2441 (3), 2455 (3), 2456 (3), 2452 (3), 2475 (1), and one elective in English (3).

As a junior or senior, the minor serves for two semesters as an assistant to one of the instructors of the Department of English.

**Suggested Sequence for Minor****Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2436 .....	3	—
English 2437, 2438 .....	3	3
	<hr/> 6	<hr/> 3

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2440 or 2461, 2452 .....	3	3
English 2455, 2456 .....	3	3
	<hr/> 6	<hr/> 6

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2441 .....	3	—
English 2475 .....	1	—
English elective .....	3	—
	<hr/> 7	<hr/>

**Non-Teaching Minor**

(Same as the Teaching Minor)

**THE MINOR IN SPEECH AND DRAMA**

The minor in Speech and Drama prepares a student for certification as a teacher of general speech.

Course Requirements (21 hrs.): English 2426 (3), 2427 (3), 2432 (3), 2443 (3), 2450 (3), 2451 (3), 2465 (3). If a student minoring in Speech and Drama is required to pursue certain courses as an English major, he must elect substitutes to bring his hours up to 21 in speech and drama. Other requirements are the same as for the minor in English.

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2426 .....	—	3
		<hr/> 3

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2427, 2443 .....	3	3
English 2450, 2451 .....	3	3
	<hr/> 6	<hr/> 6

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2465 .....	3	—
English 2432 .....	3	
	<hr/> 6	

**2401. Freshman Composition I.**  
(Formerly English 101, 102)

Credit 4(4-0)

An introduction to oral and written communication; provides the student with experience in writing short compositions, outlining written material, improving reading, speaking skills.

- 2402. Freshman Composition II.** Credit 4(4-0)  
(Formerly English 102, 103)

A continuation of 2401 which provides the student with additional experience in expository writing, with intensive instruction in descriptive, argumentative writing, narrative composition; introduces student to the techniques of investigative writing and to the skills of reading different literary genres; provides opportunities for additional experience in oral expression. Prerequisite: English 2401.

- 2403. Developmental Reading.** Credit 1(1-0)  
(Formerly English 216)

Instruction and practice in methods of increasing rate of reading and techniques of comprehending written material; emphasis upon vocabulary study and study skills. Limited registration.

### **Language and Composition**

- 2440. Advanced Composition.** Credit 3(3-0)  
(Formerly English 201)

A study of techniques of narrative, descriptive, expository, and argumentative composition. Prerequisite: English 2402.

- 2441. Advanced English Grammar and Composition.** Credit 3(3-0)  
(Formerly English 202)

Required for English majors and minors.

An intensive study of grammar and composition intended to equip the student with the knowledge of grammar essential to teaching English in the junior or senior high school and with additional training in the composition skills to enable him to express himself more effectively. Prerequisite: English 2402.

- 2442. Journalism.** Credit 3(2-2)  
(Formerly English 301)

Theoretical and practical work in gathering, organizing, and writing news; primary attention to the development of journalistic technique. Prerequisite English 2402.

- 2461. Literary Research.** Credit 3(3-0)  
(Formerly English 401)

Open only to junior and senior English majors and minors.

Advanced study in the tools and techniques of literary research and investigation; emphasizes independent study and culminates in the completion of a study of a problem in literature.

- 2462. Introduction to the History of the English Language.** Credit 3(3-0)  
(Formerly English 205)

A course designed to develop the student's understanding of modern English Syntax, vocabulary, etymology, spelling, pronunciation, and usage and to increase the student's comprehension of English literature of previous centuries through a study of the history of the language. Prerequisite: English 2441.

- 2463. Reading Skills.** Credit 2(2-0)

Open to senior English majors and minors.

A course designed to orient students to the scope of higher-level reading skills and to the problems involved in promoting increased efficiency in reading of secondary school pupils.

**Speech**

- 2425. Voice and Speech Fundamentals.** Credit 2(2-1)  
(Formerly English 210)

A study of the fundamental processes essential to effective speech; tests and recordings to discover voice and speech defects: projects, exercises, and drills to develop skill in a variety of speech situations. This course is a prerequisite for all other courses in speech. Prerequisite: English 2401.

- 2426. Public Speaking.** Credit 3(3-0)  
(Formerly English 211)

A study of the methods by which public speeches are made clear, interesting, and forceful; practice in writing and delivering speeches according to the occasion. Prerequisite: English 2425.

- 2427. Argumentation and Debate.** Credit 3(3-0)  
(Formerly English 312)

Study and practice in analysis, gathering of material, briefing, ordering of arguments and evidence, refutation, and delivery. Prerequisite: English 2425.

- 2428. Parliamentary Procedure.** Credit 1(1-0)  
(Formerly English 313)

Theory and practice in the rules and customs governing organization and proceedings of deliberative bodies. Prerequisite: English 2402.

- 2443. Phonetics. Advanced Speech.** Credit 3(3-0)  
(Formerly English 410)

The study of general American phonetics and its importance in speech correction. Prerequisite: English 2425.

- 2445. Group Discussion.** Credit 3(3-0)

A study of the forms of discussion and the principles and methods underlying them. Practice in both leading and participating in discussion situations. Prerequisite: English 2402.

**Dramatic Arts and Literature**

- 2430. Theatre Practice.** Credit 1(-2)  
(Formerly English 215)

Practical experience in staging and setting up technical designs; backstage work in costume, makeup, stagecraft, lighting, etc., is required.

- 2431. Acting.** Credit 3(3-0)

A laboratory course designed to develop skill in voice, diction, and pantomime by means of readings, monologues, skits, and short plays for school and community; practical experience in the major A. and T. productions.

- 2432. Elements of Play Production.** Credit 3(2-2)  
(Formerly English 315)

Study of basic principles in all aspects of production and application of these principles to particular situations; affords opportunities for practical experience in acting, directing, lighting, scenery design, and construction.

- 2446. Play Direction.** Credit 3(3-0)  
(Formerly English 416)

Elementary principles of staging plays; practical work in the directing of the one-act play; attention is given to the principles of selecting, casting, and rehearsing of plays. Exercises, lectures, and demonstrations. Prerequisite: English 2450, 2451, and 2432.

- 2447. Stagecraft and Lighting.** Credit 3(3-0)  
(Formerly English 415)

Study of principles of scenery construction and painting; practice in mounting productions for major shows. Prerequisite: English 2432.

- 2448. Scene Design.** Credit 3(3-0)

A course in perspective, dealing with the representation of common objects, interiors, buildings, and landscapes as they appear to the eye. One hour lecture and two hours laboratory each week. Prerequisite: English 2432.

- 2449. Radio Production.** Credit 3(3-0)

Practical experience in radio broadcasting techniques and conventional studio practices; projects in radio announcing and acting, creative dramatics, commercial announcements, variety shows, and verse reading. Programs planned and executed by the students. Prerequisite: English 2425.

- 2450. Survey of Drama I.** Credit 3(3-0)  
(Formerly English 340)

A survey course in the history, literature, criticism, and arts of the theatre to the nineteenth century. Prerequisite: English 2436.

- 2451. Survey of Drama II.** Credit 3(3-0)  
(Formerly English 341)

A continuation of 2450, from the nineteenth century to the present. Prerequisite: English 2450.

- 2452. Shakespeare.** Credit 3(3-0)  
(Formerly English 440)

An introduction to a study of the works of William Shakespeare through a detailed examination of representative works selected from the major periods of his development as a dramatist. Prerequisite: English 2436.

### Literature

- 2436. Introduction to Literary Studies.** Credit 3(3-0)  
(Formerly English 225, 335)

Required of English majors and minors in the sophomore year; open to others only with approval of instructor; the critical analysis, literary criticism, investigative and bibliographical techniques necessary to advanced study in English. This course is a prerequisite for all advanced courses in literature. Prerequisite: English 2402.

- 2437. English Literature I.** Credit 3(3-0)  
(Formerly English 320)

A survey of the literary movements and major authors of English literature in relation to the cultural history of England, from Beowulf to 1700. Prerequisite: English 2402, 2436, Soc. Sc. 2800-2801.

- 2438. English Literature II.** Credit 3(3-0)  
(Formerly English 321)

A continuation of 2437, from 1700-1914. Prerequisite: English 2402, 2437, Soc. Sci. 2800-2801.

- 2455. American Literature I.** Credit 3(3-0)  
(Formerly English 330)

A study of the literary movements and major authors of American literature in relation to the cultural history of America from the Colonial Period to 1865. Prerequisite: English 2436, Hum. 2434-2435.

2456. **American Literature II.** Credit 3(3-0)  
(Formerly English 331)

A continuation of 2455. From 1865-1914. Prerequisite: English 2436, Humanities 2434, 2435.

2457. **The Novel.** Credit 3(3-0)  
(Formerly English 430, 540)

A study of the novel as an art form, with attention to significant English and American novelists from 1750 to the present. Prerequisite: English 2436.

2458. **Modern Poetry.** Credit 3(3-0)

A study of the poetry as an art form, with attention to significant English and American poets of the twentieth century. Prerequisite: English 2436.

2469. **Senior Seminar.** Credit 1(0-2)  
(Formerly English 450, 2475)

A discussion of problems in literature and composition. Required of senior English majors and minors. Prerequisite: 21 hours of English above 2402 and including 2436.

#### Advanced Undergraduate and Graduate

2470. **Community and Creative Dramatics.** Credit 3(3-0)  
(Formerly English 515)

An introduction to basic elements and techniques of play production: acting, direction, stagecraft, lighting, costuming, play selection.

2471. **Elizabethan Drama.** Credit 3(3-0)

Chief Elizabethan plays, tracing the development of dramatic forms from early works to the close of the theaters in 1642. Prerequisite: English 2437 and 2438, 2436 or 2485.

2472. **Grammar and Composition for Teachers.** Credit 2(2-0)  
(Formerly English 500)

A course designed to provide a review of fundamentals of grammar and composition for the elementary or secondary school teacher. Not accepted for credit toward undergraduate or graduate concentration in English.

2473. **Voice and Speech for Teachers.** Credit 2(2-1)  
(Formerly English 510)

A course designed to provide a review of the fundamental skills of oral communication and instruction in public speaking. Not accepted for credit toward undergraduate or graduate concentration in English.

2476. **Children's Literature.** Credit 3(3-0)  
(Formerly English 520)

A study of the types of literature designed especially for students in the upper levels of elementary school and in junior high school. Prerequisites: Graduate standing or English 2402, Humanities 2434-2435.

2478. **The American Novel.** Credit 3(3-0)  
(Formerly English 540)

A history of the American novel from Cooper to Faulkner. Melville, Twain, Howells, James, Dreiser, Lewis, Hawthorne, Faulkner, Hemingway will be included. Prerequisite: English 2436 or 2485.



2479. **The Negro Writer in American Literature.** Credit 3(3-0)  
(Formerly English 541)

A study of prose, poetry, and drama by American authors of Negro ancestry. Their works will be studied in relation to the cultural and literary traditions of their times. Dunbar, Chestnutt, Johnson, Cullen, Bontemps, Hughes, Wright, Ellison, Baldwin, and Yerby will be included. Graduate standing or English 2402, Humanities 2434-2435.

### Graduate

These courses are open only to graduate students.

For descriptions of these courses, see the bulletin of the Graduate School.

2485. **Literary Analysis & Criticism.** Credit 3(3-0)  
(Formerly 610, 611)
2486. **Milton.** Credit 3(3-0)  
(Formerly 612) Prerequisite: English 2485.
2487. **Eighteenth Century English Literature.** Credit 3(3-0)  
(Formerly 627) Prerequisite: English 2485.
2488. **Language Arts for Elementary Teachers.** Credit 3(2-2)  
(Formerly 501, 2480) Not accepted for credit toward concentration in English.
- A course designed to provide elementary school teachers with an opportunity to discuss problems related to the language arts taught in the elementary school.
2489. **Studies in American Literature.** Credit 3(3-0)  
(Formerly 627) Prerequisite: English 2485.
2490. **Romantic Prose and Poetry.** Credit 3(3-0)  
(Formerly 626) Prerequisite: English 2485.
2491. **Modern British and Continental Fiction.** Credit 3(3-0)  
(Formerly 640) Prerequisite: English 2485.
2492. **Restoration and 18th Century Drama.** Credit 3(3-0)  
(Formerly 631) Prerequisite: English 2485.
2493. **Literary Research and Bibliography.** Credit 3(3-0)  
(Formerly 2483)
2494. **History and Structure of the English Language.** Credit 3(3-0)  
(Formerly 606, 607, 2481)
2495. **Contemporary Practices in Grammar and Rhetoric.** Credit 3(3-0)  
(Formerly 2482)
2499. **Seminar.** Credit 3(3-0)  
(Formerly 650) Prerequisite: 15 hours of graduate-level courses in English.

### HUMANITIES

#### Undergraduate

- 2434-2435. **Survey of the Humanities, I, II.** Credit 3(3-0)

A study of the interrelationship of literature, music and the fine arts; a study of master works, philosophical ideas and artistic movements of

Western Civilization. Classicism and Romanticism will be considered in 2434; Modern modes of artistic expression will be considered in 2435. Prerequisite: English 2402, Soc. Sc. 2800-2801.

**2454. Humanities III, Great Ideas of Western Civilization. Credit 3(3-0)**

A seminar devoted to the identification, analysis, and appreciation of the basic ideas or conceptions which have underlain Western culture in the arts, religion, philosophy and social attitudes from the age of the Greeks to the present. Prerequisite: Humanities 2434-2435.

## DEPARTMENT OF FOREIGN LANGUAGES

WAVERLYN N. RICE, *Chairman*

The program of the Department of Foreign Languages is based on the principle that ability to converse and understand people of other nations as well as a knowledge of one's own language, is basic to a democratic society. In view of this, the objectives are:

1. To develop reasonable facility in the reading, listening, speaking, and writing of modern foreign languages.
2. To develop a better knowledge of modern foreign cultures.
3. To create a spirit of understanding that will result in proper attitude toward different national groups.
4. To prepare students as teachers of foreign languages for employment in secondary schools.
5. To encourage students who manifest linguistic ability to continue further study and research.

The Department of Foreign Languages offers courses in French, Spanish, Russian, and German. A major is given in French (Teaching and Non-Teaching). A minor may be achieved in French and Spanish by students who complete a minimum of 21 semester hours in Spanish and 27 semester hours in French.

### Suggested Sequence for French Major

#### Teaching Program

##### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3601, 3602 .....	3	3
Social Science 2800, 2801 .....	3	3
Biological Science 1501 .....	4	—
Physical Science 1601 .....	—	4
Education 2100 .....	1	—
Air or Military Science or elective .....	1	1
Physical Ed. 2701 (2702), 2703 (2704) ....	1	1
* English 2403 .....	—	1
	17	16-17

\* For those freshmen who failed the Reading Test.

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2425 .....	2	—
Education 2120, 2121 .....	2	2
Humanities 2434, 2435 .....	3	3
French 2520, 2521 .....	3	3
French 2523, 2524 .....	3	3
Psychology 2320 .....	3	—
Health Education 2700 .....	—	2
Air or Military Science or Elective .....	2	2
	<hr/> 18	<hr/> 15

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
French 2540, 2541 .....	3	3
French 2522 .....	—	3
French 2575 .....	3	—
Education 2154 .....	3	—
Psychology 2341 .....	—	3
Electives .....	9	9
	<hr/> 18	<hr/> 18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
French 2560 .....	3	—
French 2561 .....	3	—
French 2562 .....	3	—
French 2577 or 2578 or 2579 .....	3	—
Electives .....	3	—
Education 2140 .....	—	3
Education 2148 .....	—	3
Education 2161 .....	—	6
	<hr/> 15	<hr/> 12

**Suggested Sequence for French Major****Non-Teaching Program****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2407, 2402 .....	4	4
Mathematics 3601, 3602 .....	3	3
Social Science 2800, 2801 .....	3	3
Biological Science 1501 .....	4	—
Physical Science 1601 .....	—	4
Education 2100 .....	1	—
Air or Military Science or Electives .....	1	1
Physical Education 2701 (2702), 2703 (2704)	1	1
* English 2403 .....	—	1
	<hr/> 17	<hr/> 16-17

\* For those freshmen who failed the Reading Test.

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2425 .....	2	—
Education 2120 .....	2	—
Psychology 2320 .....	3	—
Humanities 2434, 2435 .....	3	3
French 2520, 2521 .....	3	3
French 2523, 2524 .....	3	3
French 2522 .....	—	3
Education 2121 .....	—	2
Air or Military Science or Electives .....	2	2
	<hr/> 18	<hr/> 16

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2154 .....	3	—
Health Education 2700 .....	2	—
Psychology 2341 .....	—	3
French 2540, 2541 .....	3	3
French 2575 .....	—	3
French 2542 .....	—	3
Electives .....	8	6
	<hr/> 16	<hr/> 18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
French 2560, 2561 .....	3	3
French 2562 .....	3	—
French 2577, 2578 .....	3	3
French 2579 .....	3	—
History 2960 .....	3	—
Electives .....	—	12
	<hr/> 15	<hr/> 18

**COURSES IN FRENCH****Undergraduate**

**2500. Elementary French.** Credit 3(3-0)  
(Formerly French 101, 102)

A course for beginners which emphasizes the four language skills—reading, writing, speaking, listening. Prerequisite: none.

**2501. Elementary French.** Credit 3(3-0)  
(Formerly French 102, 103)

A continuation of French 2500 with further emphasis placed on the oral-aural approach. Prerequisite: French 2500, or equivalent.

**2520. Intermediate French.** Credit 3(3-0)  
(Formerly French 201)

A course which consists of a brief review of pronunciation. Grammar is stressed with emphasis on easy cultural reading. Prerequisite: French 2500 or 2501, or two units of high school French.

- 2521. Intermediate French.** Credit 3(3-0)  
(Formerly French 202)

This course is a continuation of French 2520. Stress is placed on grammar, cultural reading and conversation. Prerequisite: French 2520, or equivalent.

- 2522. Phonetics.** Credit 3(3-0)  
(Formerly French 203)

A course in French sounds and diction. Required of all students majoring and minoring in French. Recommended for those who wish to improve pronunciation. Prerequisite: French 2500 and 2501.

- 2523. Intermediate Oral French.** Credit 3(3-0)  
(Formerly French 204)

Intermediate Oral French Course which prepares students for French 2524. It is designed to enable students to understand lectures and conversations of average tempo. Prerequisite: French 2520 and 2521.

- 2524. Advanced Oral French.** Credit 3(3-0)  
(Formerly French 205)

A course which offers to students intensive training in self-expression and an opportunity to improve pronunciation, diction, reading and speaking.

- 2540. Survey of French Literature.** Credit 3(3-0)  
(Formerly French 301)

A general introduction to the study of French literature. This course gives a clear idea of the great periods and main tendencies in history of French thought and letters from 842 to the 19th century.

- 2541. Survey of French Literature.** Credit 3(3-0)  
(Formerly French 301)

A continuation of French literature from the 19th century to the present.

- 2560. Advanced French Composition.** Credit 3(3-0)  
(Formerly French 401)

Advanced course in oral and written self expression in French, Special attention to vocabulary building, free composition and conversation, prepared and improvised, covering the many phases of everyday activities.

- 2561. Advanced French Grammar and Composition.** Credit 3(3-0)  
(Formerly French 402)

Course designed to give the students practical training in the use of advanced French grammar and reading. Conducted largely in French.

- 2562. French Civilization.** Credit 3(3-0)  
(Formerly French 404)

A general survey of the history of France, with emphasis on the social, political and economic development designed to give the students an understanding of present conditions and events. A detailed study of such French institutions as art, music, and education. Course is also offered in conjunction with reports of collateral readings.

#### **Advanced Undergraduate and Graduate**

- 2571. Problems and Trends in Foreign Languages.** Credit 3(3-0)  
(Formerly French 501)

Problems encountered by teachers given consideration. Place and purpose of foreign language in the curriculum today.

2572. **Oral Course for Teachers of Foreign Languages.** Credit 3(3-0)  
(Formerly French 502)

Designed for teachers of foreign languages to improve pronunciation and spelling.

2573. **Research in the Teaching of Foreign Languages.** Credit 3(3-0)  
(Formerly French 503)

Open to students who are interested in undertaking the study of a special problem in the teaching of a foreign language.

2574. **French Literature of the Seventeenth Century.** Credit 3(3-0)  
(Formerly French 302)

Course presents Classicism through masterpieces of Corneille, Racine, Moliere and other authors of the "Golden Period" in French letters.

2575. **French Literature of the Eighteenth Century.** Credit 3(3-0)  
(Formerly French 303)

To study in particular the life and works of Montesquieu, Voltaire, Rousseau, and the Encyclopedists.

2576. **French Literature of the Nineteenth Century.** Credit 3(3-0)  
(Formerly French 304)

Study of the great literary currents of the Nineteenth century Romanticism and Realism.

2577. **The French Theatre.** Credit 3(3-0)  
(Formerly French 504)

A thorough study of the French theatre from the Middle Ages to the present.

2578. **The French Novel.** Credit 3(3-0)  
(Formerly French 505)

A study of the novel from the Seventeenth Century to the present.

2579. **French Syntax.** Credit 3(3-0)  
(Formerly French 506)

Designed to teach grammar on the more advanced level.

2580. **Contemporary French Literature.** Credit 3(3-0)  
(Formerly French 305 and 2542)

Course deals with the chief writers and literary currents from 1900 to the present.

### FOR GRADUATE STUDENTS ONLY

For descriptions of these courses, see the bulletin of the Graduate School.

2585. **Advanced Reading and Composition.** Credit 3(3-0)  
(Formerly 601 and 2580)

2586. **Romantic Movement in France (1820-1848).** Credit 3(3-0)  
(Formerly 602 and 2581)

2587. **Seminar in Foreign Languages.** Credit 1(1-0)  
(Formerly 603 and 2582)

2588. **Contemporary Literary Criticism.** Credit 3(3-0)  
(Formerly 604 and 2583)

2589. **Independent Study in Foreign Languages.** Credit 3(3-0)  
(Formerly 2584)



**COURSES IN SPANISH****Undergraduate**

- 2504. Elementary Spanish.** Credit 3(3-0)  
(Formerly Spanish 101, 102)

A course for beginners which consists of grammar, composition, translation, practice in pronunciation and use of the spoken language.

- 2505. Elementary Spanish.** Credit 3(3-0)  
(Formerly Spanish 102, 103)

Continuation of Elementary Spanish 2504. Attention is given to advanced grammar. Prerequisite: Spanish 2504 or equivalent.

- 2530. Intermediate Spanish.** Credit 3(3-0)  
(Formerly Spanish 201)

Review of grammar, composition and conversation. Prerequisite: Spanish 2505 or two years of high school Spanish.

- 2531. Intermediate Spanish.** Credit 3(3-0)  
(Formerly Spanish 202)

Continuation of Spanish 2530. Prerequisite: Spanish 2530 or equivalent.

- 2532. Phonetics.** Credit 3(3-0)  
(Formerly Spanish 202)

A systematic analysis of speech sounds, and the operation of phonetic laws. Prerequisite: Spanish 2505 or equivalent.

- 2533. Intermediate Conversation.** Credit 3(3-0)  
(Formerly Spanish 204)

Practice and drill in oral Spanish based principally on topics of current interest. Prerequisite: Spanish 2505 or equivalent.

- 2534. Introduction to Spanish Literature.** Credit 3(3-0)  
(Formerly Spanish 205)

Readings of representative authors of Spain. Prerequisite: Spanish 2505 or equivalent.

- 2543. La Cultura Hispanica.** Credit 3(3-0)  
(Formerly Spanish 301)

A course which covers the basically significant elements of Hispanic Civilization: geography, history, literature, and economics of the Spanish people. Prerequisite: Spanish 2505 or equivalent.

- 2544. Survey of Spanish Literature.** Credit 3(3-0)  
(Formerly Spanish 302)

A survey of Spanish literature from the Cid through the golden age with assigned readings and reports. Prerequisite: Spanish 2505 or equivalent.

- 2545. Survey of Spanish Literature.** Credit 3(3-0)  
(Formerly Spanish 303)

A survey of Spanish literature from the seventeenth century to the present. Prerequisite: Spanish 2505 or equivalent.

- 2546. Syntax.** Credit 3(3-0)  
(Formerly Spanish 304)

Systematic study of Spanish grammar with conversational and other exercises based on contemporary authors. Prerequisite: Spanish 2531.

**COURSES IN GERMAN****Undergraduate**

**German 2502. Elementary German.** Credit 3(3-0)  
(Formerly German 101, 102)

Fundamentals of pronunciation and grammar. Attention given to prepared and sight translations and vocabulary building.

**German 2503. Elementary German.** Credit 3(3-0)  
(Formerly German 102, 103)

Continuation of emphasis on grammar, vocabulary building, prepared and sight translations. Maximum attention given to graded readings in German prose and drama.

**German 2526. Conventional German.** Credit 3(3-0)  
(Formerly German 201)

Intensive practice in everyday German is provided. Prerequisites are German 2502, 2503, or approval of instructor.

**German 2527. Intermediate German.** Credit 3(3-0)  
(Formerly German 202)

This course is open to students who have completed German 2502 and 2503. The students read a cross-section of the simpler writings in German literature and German newspapers.

**German 2528. Intermediate German.** Credit 3(3-0)  
(Formerly German 203)

The students continue simple readings from German literature and read also a significant, simplified novel.

**German 2529. Intermediate Scientific German.** Credit 3(3-0)  
(Formerly German 205, 206)

Works in science on the second-year level.

**German 2530. Survey of German Literature.** Credit 3(3-0)

A general introduction to the study of German literature. This course is intended to give an over-all picture of German literature and an opportunity to read outstanding works not offered in other German courses.

**COURSES IN RUSSIAN**

**Russian 2506. Elementary Russian.**

An elementary course for beginners which consists of grammar, translation, practice in pronunciation and limited use of the spoken language.

Prerequisite: None.

**Russian 2507. Elementary Russian.**

Continuation of Elementary Russian 2506. Attention is given to more advanced grammar. Reading in Russian is stressed.

Prerequisite: Russian 2506.

## DEPARTMENT OF MUSIC

HOWARD T. PEARSALL, *Chairman*

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Geared toward teacher education, the Department of Music purports to teach its majors those musical facts, elements, and basic skills necessary for the development of a literate music teacher. In keeping with such teaching, the department's objectives are:

1. A knowledge of the structural elements in music through the development of sound personal musicianship and the acquisition of such functional skills as transposition, score reading and analysis, and arranging of music as required in teaching situations.
2. A sensitivity to and critical awareness of the elements of aesthetic musical performance through a performance of and reading of standard technique and characteristic tone quality of each band and orchestral instrument in symphonic bands, smaller ensembles or keyboard instruments.
3. The ability to sing art songs and arias artistically.
4. A comprehensive understanding of music history and literature covering the various eras in music.
5. Adequate training in teaching and conducting ensembles, including interpretation.
6. A functional command of the keyboard through skills in reading, transposing, improvising accompaniments for the classroom and assembly singing, and providing accompaniments for instrumental and vocal solos.
7. An understanding of materials, equipment and methods of teaching on all levels and a concept of the sequential development of music learning.

The Department of Music shares with the Departments of English and Art the responsibility to provide for students experiences which contribute to their aesthetic growth and well being. To this end, the department, through courses in the Humanities, teaches to many students the elements of music, the structure of music, and the language of music-terminology. For purposes of literacy, the students are exposed to those compositions, composers, and artists in music which the layman in today's society is supposed to know.

For students who wish to attain for themselves and who wish to help others attain an appreciation of music's qualities, the Department of Music offers varied experiences in performing groups—a marching band, a symphonic band, chamber ensembles, a female glee club, the male singers, and a mixed choir. Through the performances of these groups it is believed that both the student and his public may develop better value judgments in music—a sensitivity toward the selectivity of good and great music, a response toward the expressive qualities in music, and the promotion of music as one of the essential arts.

**REQUIREMENTS**

1. Students enrolled in applied music courses must practice a minimum of one hour and a half daily. The enrollees must perform on at least one student recital each semester. Students studying piano and voice as an applied music minor must perform in class recitals. Each senior will play a senior recital the first semester of the senior year.
2. Examinations for major instruments will be conducted by a jury of the music faculty.
3. Music students must participate in a music ensemble each semester of residence. They are required to wear the official dress of the performing ensemble.

**The Major in Music**

The Department of Music's curriculum is designed primarily toward the teaching of instrumental and vocal music in the public schools. The pursuance of courses leading to the B.S. Degree in music should enable one to get a teaching certificate for the State of North Carolina. Students who wish to be certified to teach in other states should write to these states and obtain information about the certification requirements.

**DEPARTMENT OF MUSIC****Freshman Year****(Band or Orchestral Instruments and Piano)**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Biological Science 1501 .....	4	—
English 2401, 2402 .....	4	4
Health Education 2700 .....	—	2
Music 2600, 2601 .....	2	2
Music 2605, 2606 .....	1	1
Orientation 2100 .....	1	—
Phy Education 2701 or 2702; 2703 or 2704 .....	1	1
Physical Science 1601 .....	—	4
Social Science 2800 or 2801 .....	3	3
Air or Military Science or Elective .....	1	1
	17	18

**Freshman Year****(Voice)**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Biological Science .....	4	—
English 2401, 2402 .....	4	4
German 2502, 2503 .....	3	3
Health Education 2700 .....	—	2
Music 2600, 2601 .....	2	2
Music 2611, 2612 .....	1	1
Orientation 2100 .....	1	—
Physical Science 1601 .....	—	4
Air or Military Science or Elective .....	1	1
	16	17

**Saphamore Year****(Band or Orchestral Instruments and Piano)**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2120, 2121 .....	2	2
English 2425 .....	—	2
German or French 2502, 2503; 2500, 2501 ..	3	3
Humanities 2434, 2435 .....	3	3
Mathematics 3601, 3602 .....	3	3
Music 2620, 2621 .....	2	2
Music 2625, 2626 .....	1	1
Psychology 2320 .....	3	—
Air or Military Science or Elective .....	2	2
	<hr/> 19	<hr/> 18

**Saphamore Year****(Voice)**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2120, 2121 .....	2	2
English 2425 .....	—	2
French 2500, 2501 .....	3	3
Mathematics 3601, 3602 .....	3	3
Music 2620, 2621 .....	2	2
Music 2623, 2624 .....	1	1
Music 2628, 2629 .....	1	1
Psychology 2320 .....	3	—
Air or Military Science or Elective .....	2	2
	<hr/> 17	<hr/> 16

**Junior Year****(Band or Orchestral Instruments)**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2141 .....	—	2
Education 2154 .....	3	—
Music 2640, 2641 .....	2	2
Music 2641 .....	—	2
Music 2643, 2644 .....	3	3
Music 2645, 2646 .....	1	2
Music 2647, 2648 .....	2	2
Music 2649, 2650 .....	1	1
Music 2653, 2654 .....	1	1
Electives .....	3	3
	<hr/> 16	<hr/> 18

**Junior Year****(Piano)**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2141 .....	—	2
Education 2154 .....	3	—
Music 2640, 2641 .....	2	2
Music 2642 .....	—	2
Music 2643, 2644 .....	3	3
Music 2645, 2646 .....	1	2
Music 2647, 2648 .....	2	2
Music 2651, 2652 .....	1	1
Music 2655, 2656 .....	1	1
Music 2671 .....	2	—
Electives .....	3	3
	18	18

**Junior Year****(Voice)**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2141 .....	—	2
Education 2154 .....	3	—
Humanities 2434 .....	3	3
Music 2640, 2641 .....	2	2
Music 2643, 2644 .....	3	3
Music 2649, 2650 .....	1	1
Music 2655, 2656 .....	1	1
Music 2659, 2669 .....	1	2
Electives .....	3	3
	17	17

**Senior Year****(Band or Orchestral Instruments)**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Psychology 2341 .....	3	—
Education 2140 .....	—	3
Education 2145 .....	—	3
Education 2161 .....	—	6
Music 2651, 2652 .....	1	2
Music 2660 .....	3	—
Music 2661 .....	2	—
Music 2662 .....	2	—
Music 2664 .....	2	—
Music 2665 .....	3	—
Music 2673 .....	1	—
Electives .....	3	3
	20	17



**Senior Year****(Piano)**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Psychology 2341 .....	3	—
Education 2140 .....	—	3
Education 2142 .....	—	3
Education 2161 .....	—	6
Music 2660 .....	3	—
Music 2661 .....	2	—
Music 2662 .....	2	—
Music 2663 .....	—	2
Music 2664 .....	2	—
Music 2665 .....	3	—
Music 2675 .....	1	—
Electives .....	3	3
	19	17

**Senior Year****(Voice)**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Psychology 2341 .....	3	—
Education 2140 .....	—	3
Education 2142 .....	—	3
Education 2161 .....	—	6
Music 2661 .....	2	—
Music 2664 .....	3	—
Music 2676 .....	1	—
Music 2679 .....	4	—
Electives .....	3	3
	15	15

**COURSES IN MUSIC THEORY****Undergraduate**

**9600. Remedial Theory.** No Credit  
(Formerly 001-002) Required of all students who fail the theory placement examination.

**9601. Remedial Theory.** No Credit  
Notation; scales and intervals, in all keys, with ear training, sight singing, and dictation.  
(Formerly 002-003)  
A continuation of Music 9600.

**2600. Theory I.** Credit 2(1-2)  
(Formerly 201)  
Primary and secondary triads and their inversion in major and minor; sight singing, dictation, and keyboard harmony.

2601. **Theory II.** Credit 2(1-2)  
 (Formerly 202)  
 Introduction to diatonic seventh chords; simple modulation; sight singing, dictation, and keyboard harmony.
2619. **Sight Singing.** Credit 1(0-2)  
 (Formerly 200)  
 Singing simple melodies at sight. For choir members, male singers, and Home Economics majors.
2620. **Theory III.** Credit 2(1-2)  
 (Formerly 203)  
 Modulation; allied theory related to performance practice; part-writing procedures; altered and borrowed chords; secondary dominants.
2621. **Theory IV.** Credit 2(1-2)  
 (Formerly 301, 302)  
 Augmented triads and the Neapolitan sixth chord; augmented sixth chords; chords of the ninth, eleventh, and thirteenth; advanced modulation.
2640. **Counterpoint.** Credit 2(2-0)  
 (Formerly 210)  
 Two-voice and three voice counterpoint and two and three-part inventions.
2641. **Counterpoint.** Credit 2(2-0)  
 (Formerly 210)  
 Eighteenth century contrapuntal style-free counterpoint.
2642. **Form and Analysis.** Credit 2(1-2)  
 (Formerly 401)
2660. **Instrumental Arranging.** Credit 3(2-2)  
 (Formerly 402)  
 The art of writing for combinations of instruments; the art of sectional writing for instruments; the art of scoring for full band.

### COURSES IN MUSIC LITERATURE

#### Undergraduate

2643. **History and Appreciation of Music.** Credit 3(2-2)  
 (Formerly 318, 319)  
 A survey of music from the ancient Greeks to the 18th century.
2644. **History and Appreciation of Music.** Credit 3(2-2)  
 (Formerly 319, 320)  
 A survey of music from the 18th century to the present.
2664. **Music of the Baroque and Romantic Periods.** Credit 2(2-2)  
 (Formerly 418, 419)

### COURSES IN MUSIC EDUCATION

#### Undergraduate

2647. **Percussion Instruments.** Credit 2(1-2)  
 (Formerly 323)  
 Techniques and methods of playing percussion instruments.

2648. **Woodwind Instruments.** Credit 2(1-2)  
(Formerly 324)  
Techniques and methods of playing woodwind instruments.
2662. **Brass Instruments.** Credit 2(1-2)  
(Formerly 325)  
Techniques and methods of playing brass instruments.
2651. **Voice Class.** Credit 1(0-2)  
(Formerly 326, 336)  
Breathing, resonance, diction; art songs in English and Italian.
2652. **Voice Class.** Credit 1(0-2)  
(Formerly 426, 436)  
A continuation of 2651; art songs in German and French.
2661. **Score Reading and Conducting.** Credit 2(1-2)  
(Formerly 402)  
The reading of clefs; the reading of vocal, orchestral, and band scores, and the conducting of the same.
2671. **Accompanying.** Credit 2(0-4)  
(Formerly 404)  
The art of accompanying vocal solos and instrumental solos and ensembles.

### COURSES IN APPLIED MUSIC

#### Undergraduate

9603. **Remedial Piano Class.** Credit (none)  
(Formerly 004)  
Only for music majors. Simple compositions, scales, and arpeggios.
2605. **Major Instruments for Freshmen.** Credit 1(0-2)  
Scales, arpeggios, studies, and suitable pieces for individual instruments.
2606. **Major Instruments for Freshmen.** Credit 1(0-2)  
A continuation of 2605.
2611. **Voice I.** Credit 1(0-2)  
Posture, breath control, articulation, resonance, Italian songs.
2612. **Voice II.** Credit 1(0-2)  
A continuation of 2611.
2623. **Voice III.** Credit 1(0-2)  
German and English songs.
2624. **Voice IV.** Credit 1(0-2)  
A continuation of 2623.
2625. **Major Instruments for Sophomores.** Credit 1(0-2)  
Scales, arpeggios, advanced studies, and suitable pieces for individual instruments.
2626. **Major Instruments for Sophomores.** Credit 1(0-2)  
A continuation of 2625.
2628. **Piano I.** Credit 1(0-2)  
Beginners' Bach and other studies; easy recital; scales and arpeggios.

2629. Piano II. Credit 1(0-2)  
A continuation of 2628.
2645. Major Instruments for Juniors. Credit 1(0-2)  
Scales, arpeggios, and virtuosity studies; advanced recital pieces for individual instruments.
2646. Major Instruments for Juniors. Credit 2(0-2)  
(Formerly 338, 348)  
Scales, arpeggios, and virtuosity studies; advanced recital pieces for individual instruments.
2649. Piano III. Credit 1(0-2)  
(Formerly 329, 339)  
Scales and arpeggios; intermediate Bach; piano works of Chopin, Grieg, Schumann, and others.
2650. Piano IV. Credit 1(0-2)  
(Formerly 339, 349)  
A continuation of 2649.
- Music 2659. Voice V. Credit 1(0-2)  
French and English songs; easy arias.
- Music 2665. Major Instruments for Seniors. Credit 3(0-2)  
(Formerly 428-438)  
A continuation of 2646; Senior recital.
- Music 2569. Voice VI. Credit 2(0-4)  
Arias from oratorios, cantatas, and operas con'd. Cycles.
- Music 2679. Voice VII. Credit 3(0-6)  
A continuation of 2669. Seminar recital.

#### COURSES FOR ENSEMBLES

- Music 2603. Band for Freshmen. Credit 1(0-5)  
(Formerly 131, 141)
- Music 2604. Band for Freshmen. Credit 1(0-5)  
(Formerly 141, 151)
- Music 2633. Band for Sophomores. Credit 1(0-5)
- Music 2633. Band for Sophomores. Credit 1(0-5)
- Music 2653. Band for Juniors. Credit 1(0-5)
- Music 2654. Band for Juniors. Credit 1(0-5)
- Music 2673. Band for Seniors. Credit 1(0-5)
- Music 2674. Band for Seniors. Credit 1(0-5)  
(Formerly 441, 451)
- Music 2615. Choir for Freshmen. Credit 1(0-4)  
(Formerly 132, 142)
- Music 2616. Choir for Freshmen. Credit 1(0-4)  
(Formerly 142, 152)
- Music 2635. Choir for Sophomores. Credit 1(0-4)  
(Formerly 232, 242)

<b>Music 2636. Choir for Sophomores.</b> (Formerly 242, 252)	Credit 1(0-4)
<b>Music 2655. Choir for Juniors.</b> (Formerly 332, 342)	Credit 1(0-4)
<b>Music 2656. Choir for Juniors.</b> (Formerly 342, 352)	Credit 1(0-4)
<b>Music 2675. Choir for Seniors.</b> (Formerly 432, 442)	Credit 1(0-4)
<b>Music 2676. Choir for Seniors.</b> (Formerly 442, 452)	Credit 1(0-4)
<b>Music 2607. Male Singers for Freshmen.</b> (Formerly 133, 143)	Credit 1(0-4)
<b>Music 2608. Male Singers for Freshmen.</b> (Formerly 143, 153)	Credit 1(0-4)
<b>Music 2637. Male Singers for Sophomores.</b> (Formerly 233, 243)	Credit 1(0-4)
<b>Music 2638. Male Singers for Sophomores.</b> (Formerly 243, 153)	Credit 1(0-4)
<b>Music 2657. Male Singers for Juniors.</b> (Formerly 333, 343)	Credit 1(0-4)
<b>Music 2658. Male Singers for Juniors.</b> (Formerly 343, 353)	Credit 1(0-4)
<b>Music 2677. Male Singers for Seniors.</b> (Formerly 433, 443)	Credit 1(0-4)

#### **COURSES FOR ADVANCED UNDERGRADUATE AND GRADUATE**

<b>2680. Music in the Elementary Schools Today.</b> (Formerly 534)	Credit 3(3-0)
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Selection and presentation of the rote song; the child's voice in singing and its care and development; the introduction and development of music reading; rhythmic development; instrumental music; creative music; and the listening program.

<b>2681. Music in the Secondary Schools Today.</b> (Formerly 535)	Credit 3(3-0)
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Techniques of vocal and instrumental music instruction in the junior and senior high schools; the general music class; the organization, administration, and supervision of music programs, as well as music in the humanities. This course includes the adolescent's voice and its care; the testing and classification of voices; operatta production; the instrumental program; and training glee clubs, choirs, bands, and instrumental ensembles.

<b>2682. Choral Conducting of School Music Groups.</b> (Formerly 536)	Credit 2(0-4)
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Girls and boys' glee clubs, mixed ensembles or mixed choirs.

2683. **Instrumental Conducting of School Music Groups.** Credit 2(0-4)  
(Formerly 537)

The skills of conducting with literature for beginners, intermediate, and advanced junior high and senior high school bands and orchestras.

2684. **The Psychology of Music.** Credit 3(3-0)  
(Formerly 538)

The use of psychology in the learning and teaching of music.

2685. **Advanced Music Appreciation.** Credit 3(2-2)  
(Formerly 603)

Emphasis on large music forms, including Bach's *B Minor Mass* and *Six Brandenburg Concertos*, Mozart's *Don Giovanni*, Beethoven's *Symphony No. IX*, Schubert's *Symphony in C Major* and *The Trout Quintet*, Berlioz's *Symphony Fantastique*, Brahms's *Symphony No. IV*, Bizet's *Carmen*, Verdi's *Aida*, Wagner's *Lohengrin*, Debussy's *Afternoon of a Faun*, Bartok's *Concerto for Orchestra*, Berg's *Wozzeck*, Hindemith's *Mathis der Maler*, and others.



**DIVISION OF NATURAL SCIENCE  
AND MATHEMATICS**

- **DEPARTMENT OF BIOLOGY**
- **DEPARTMENT OF CHEMISTRY**
- **DEPARTMENT OF MATHEMATICS**
- **DEPARTMENT OF PHYSICS**



## DEPARTMENT OF BIOLOGY

ARTIS P. GRAVES, *Chairman*

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The program of the Biology Department is designed to serve the needs of the university as a whole in the area of the biological sciences. The undergraduate courses of instruction are organized to provide training necessary for specialization in agricultural sciences, home economics, nursing, horticulture, and the teaching of Biology. The Department offers courses designed to meet the general education requirement of the university and a professional program for entrance into graduate, medical, dental and veterinary schools. A Master of Science degree in Education with concentration in Biology is also offered by the Biology Department.

A student may earn the Bachelor of Science degree in Biology by pursuing either of the two curricula offered by the department. The professional major is designed to meet the needs of students planning a vocation in industry, dentistry, medicine, veterinary medicine, or further graduate studies. The teaching major is designed for Biology majors who desire to meet the requirements for certification as secondary school teachers in North Carolina.

The curricula of the two programs are similarly structured in the freshman and sophomore years. The course requirements of the upper level of these programs vary in that each is geared toward its specific goal.

The Master of Science in Education. A graduate student may earn the Master of Science degree in Education with concentration Biology by pursuing the thesis or the non-thesis program.

The thesis plan requires a minimum of thirty-three hours of credit, including research for the thesis. Thirty-six semester hours are required in the non-thesis plan.

In each of these procedures the minimum required courses in education are identical, namely 12 semester hours. The academic program in each prescribes a minimum of 18 semester hours in subject matter courses for certification in a specific area of concentration. The two programs differ in terms of electives, the non-thesis program prescribes 6 semester hours of electives.

In the pursuance of the M. S. in Education Degree with a major in Biology under the non-thesis program, the candidate is required to complete 18 semester hours in biological science. Six semester hours of electives can be selected in the area of chemistry, mathematics or physics. Of the above required 24 hours, 18 are applied to subject matter requirement of the degree and six are prescribed as electives. Twelve semester hours of required education courses are also included.

Participants who wish to pursue the degree under the non-thesis plan could receive it by successfully meeting the following requirements.

Major (Science) . . . .	18 semester hours
Education . . . . .	12 semester hours
Electives . . . . .	6 semester hours

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36 semester hours

*Professional Major.* The professional major requires the student to complete a minimum of 32 semester hours in the major field consisting of the following courses: Botany 1507; Microbiology 1524; Zoology 1512, 1531, 1551, 1552, 1566 and 1567. The professional major is further required to complete the following courses in related sciences and other areas: Chemistry 1611, 1612, 1621, 1622; Physics 3825, 3826; Mathematics 3611, 3613; English 2401, 2402, 2425; Education 2100, 2120, 2121; French 2500, 2501 or German 2502, 2503; Humanities 2434, 2435; Psychology 2320; Social Science 2800, 2801; Physical Education, 4 hours; Air or Military Science, 6 hours; and 6 hours of free electives. Six hours of major electives are further recommended in this program.

*Teaching Major.* This program requires a minimum of 32 semester hours in Biology. These credits must include the following courses: Botany 1507; Microbiology 1524; Biology 1540; Zoology 1512, 1531, 1552, 1566 and 1567. Related science requirements consist of: Chemistry 1611, 1612, and 1621; Physics 3825, 3826. Teacher certification requirements consist of the following courses: Education 2120, 2121, 2140, 2150, 2154 and 2161; Psychology 2320 and 2341. Other requirements include Education 2100; English 2401, 2402 and 2425; French 2500, 2501 or German 2502, 2503; Humanities 2434, 2435; Mathematics 3611, 3613; Physical Education, 4 hours; Social Science 2800, 2801; 6 hours of free electives and 6 hours of Air or Military Science. Three hours of major electives are also recommended.

A minimum of 20 semester hours in Biology is required of students who minor in Biology. The minor consists of the following courses, or their equivalent: Botany 1507; Zoology 1512, 1531, 1552 and 1566.

It is suggested that persons planning to apply for admission to medical schools should pursue a major in Biology, or a major in Chemistry and a minor in Biology.

#### Programs for Biological Science Majors

#### PROFESSIONAL MAJOR CURRICULUM

##### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Air or Military Science or Electives . . . . .	1	1
Education 2100 . . . . .	1	—
English 2401, 2402 . . . . .	4	4
Mathematics 3611, 3613 . . . . .	4	4
Physical Education 2701, 2703 (Men) or 2702, 2704 (Women) . . . . .	1	1
Social Science 2800, 2801 . . . . .	3	3
Zoology 1512, Botany 1507 or Botany 1507, Zoology 1512 . . . . .	4	4
	— 18	— 17

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Air or Military Science or Electives .....	2	2
Chemistry 1611, 1612 .....	4	4
Education 2120 .....	2	—
English 2425 .....	—	2
Health Education 2700 .....	—	2
Humanities 2434, 2435 .....	3	3
Psychology 2320 .....	3	—
*Zoology 1531, Bacteriology 1524 .....	4	4
	<hr/> 18	<hr/> 17

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2121 .....	2	—
Chemistry 1621, 1622 .....	5	5
French or German 2500, 2501 or 2502, 2503 ..	3	3
Zoology 1551, 1552 .....	4	3
*Zoology 1566 .....	—	4
Electives (Free) .....	3	3
	<hr/> 17	<hr/> 18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Physics 3825, 3826 .....	4	4
*Zoology 1567 .....	4	—
Zoology 1568, 1569 .....	1	1
Electives (Major) .....	3	3
Electives (Free) .....	—	4
	<hr/> 12	<hr/> 12

**TEACHING CURRICULUM****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Air or Military Science or Electives .....	1	1
Education 2100 .....	1	—
English 2401, 2402 .....	4	4
Health Education 2700 .....	—	2
Mathematics 3611, 3613 .....	4	4
Physical Education 2701 (Men) or 2702 (Women) .....	1	—
Social Science 2800, 2801 .....	3	3
*Zoology 1512, Botany 1507 or Botany 1501, Zoology 1512 .....	4	4
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\* These courses may be taken during the fall or spring semesters.

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Air or Military Science or Electives .....	2	2
*Bacteriology 1524, Zoology 1531 .....	4	4
Chemistry 1611, 1612 .....	4	4
Education 2120, 2121 .....	2	2
English 2425 .....	—	2
Humanities 2434, 2435 .....	3	3
Physical Education 2703 (Men) 2704 (Women) .....	—	1
Psychology 2320 .....	3	—
	18	18

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Biology 1540 .....	—	3
Chemistry 1621 .....	5	—
Education 2154 .....	3	—
French 2500, 2501 or German 2502, 2503 ...	3	3
Physics 3825, 3826 .....	4	4
Zoology 1552 .....	—	3
Electives, (Free) .....	3	3
	18	16

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2140 .....	—	3
Education 2150 .....	—	3
Education 2161 .....	—	6
Psychology 2341 .....	3	—
*Zoology 1566 .....	4	—
*Zoology 1567 .....	4	—
Zoology 1568 .....	1	—
Electives, (Major) .....	3	—
	15	12

**COURSES IN BIOLOGY****Undergraduate****1501. Biological Science.**

Credit 4(3-2)

(Formerly Biol. Sc. 101)

This is a general education course that stresses the objectives presented under the general education program of the School of Education and General Studies. It is structured to meet the needs of students who plan to teach (a) at the pre-school level, (b) at the elementary school level, (c) at the secondary level in a non-science mathematics area, and (d) in the area of music. In addition, this course is designed for freshmen who plan to concentrate in the divisions of the Humanities or the Social Sciences.

\* These courses may be taken during the fall or spring semesters.



- 1540. Field Biology.** Credit 3(1-4)  
(Formerly Biol. 301)

This course is designed to give a more detailed understanding of the ecological requirements of organisms, their distribution and their way of life. Emphasis is placed on the method of collecting, classifications, and preserving samples of organisms, where and when to find them and the sources of pertinent information regarding them.

## COURSES IN BACTERIOLOGY

### Undergraduate

- 1523. Microbiology.** Credit 4(2-4)  
(Formerly Bact. 201)

A survey of the principles and techniques of microbiology and immunology with special emphasis on their application to nursing.

- 1524. General Microbiology.** Credit 4(2-4)  
(Formerly Gen. Bact. 202)

A general course designed to orient the student within the world of microscopic living things, including yeasts, molds, bacteria, protozoa, rickettsiae, and viruses. Detailed study will be given to bacteria as the prototypes of all microorganisms and selected macroorganisms are emphasized. Prerequisites: Zoology 1512, Botany 1507, Chemistry 1611 and 1612.

- 1543. Dairy Bacteriology.** Credit 4(2-4)  
(Formerly Bact. 302)

A general course which considers some of the common organisms associated with normal, and abnormal fermentations of milk; the role of microorganisms in the production and decomposition of various dairy products is also considered. Prerequisite: Gen. Microbiol. 1524.

- 1544. Soil Bacteriology.** Credit 4(2-4)  
(Formerly Bact. 303)

The role of microorganisms in soil fertility. Special emphasis is on the activity of the nitrogen-fixing bacteria and also those concerned in the decomposition of organic waste materials. Prerequisite: Gen. Microbiol. 1524.

## COURSES IN BOTANY

### Undergraduate

- 1507. General Botany.** Credit 4(2-4)  
(Formerly Bot. 101 & 102)

Plants as living organisms constituting an integrated part of man's environment; general plant structure, general classification, evolutionary tendencies, and living processes.

- 1527. Plant Taxonomy.** Credit 4(2-4)  
(Formerly Bot. 201)

Systematic botany, and taxonomic system, botanical nomenclature, and herbarium techniques are combined in this study of selected orders, families, and genera of seed plants. Prerequisite: Botany 1507.

- 1528. Plant Physiology.** Credit 4(2-4)  
(Formerly Bot. 202)

An elementary course designed to develop a clear understanding of the basic physiological process related to the structure, growth, and function of the seed plants. Prerequisites: Botany 1507, Chemistry 1611 and 1612.

1547. **Plant Pathology.** Credit 4(2-4)  
(Formerly Bot. 301)

Basic factors governing the development of plant diseases including host-parasite relationships, effect of environment on disease development and the nature of disease resistance. Prerequisite: Botany 1507.

#### **Advanced Undergraduate and Graduate**

1572. **Plant Biology.** Credit 3(1-2)  
(Formerly Bot. 505)

A presentation of fundamental botanical concepts to broaden the background of high school biology teachers. Bacteria, fungi, and other microscopic plants will be considered as well as certain higher forms of plants. The course will consist of lectures, laboratory projects, and field trips.

1573. **Special Problems in Botany.** Credit 3(1-2)  
(Formerly Bot. 504)

Open to advanced students in botany for investigation of specific problems. Prerequisite: Botany 1507 or 1572.

#### **COURSE IN GENERAL SCIENCE**

1570. **General Science for Elementary Teachers.** Credit 2(2-0)  
(Formerly Gen. Sci. 506)

This course will consider some of the fundamental principles of the life and physical sciences in an integrated manner in the light of present society needs.

#### **COURSES IN ZOOLOGY**

##### **Undergraduate**

1512. **General Zoology.** Credit 4(2-4)  
(Formerly Zool. 101 & 102)

An introduction to the study of invertebrates and vertebrates with emphasis on classification, morphology and physiology of representative forms.

1531. **Comparative Anatomy of the Vertebrates.** Credit 4(2-4)  
(Formerly Zool. 201)

A comparative study of chordate organ systems with rather detailed emphasis on the primitive vertebrates, dogfish shark and the cat. Prerequisite: Zoology 1512.

1532. **Advanced Invertebrate Zoology.** Credit 4(2-4)  
(Formerly Zool. 202)

Comprehensive consideration of the morphology, function, phylogeny, classification and the life histories of representative forms of lower and higher invertebrate groups exclusive of insects. Prerequisite: Zoology 1512.

1533. **Human Anatomy and Physiology.** Credit 4(2-4)  
(Formerly Zool. 203)

A study of general structure and function of the organ system of man. Not open to Biology majors. Prerequisite: Zoology 1512.

1551. **Histology.** Credit 4(2-4)  
(Formerly Zool. 302)

The microscopic anatomy of cells, tissues and organs with special emphasis on histogenesis, histochemistry and histophysiology. Prerequisite: Zoology 1512.

- 1552. Principles of Genetics.** Credit 3(2-2)  
(Formerly Zool. 303)

Chromosomal mechanisms and the molecular basis of heredity; concept of template surfaces and the replication and genetic organization of DNA. Gene action at the molecular level; gene structure and function; the genetic code; regulation of protein synthesis; cell differentiation and development.

- 1553. General Entomology.** Credit 3(1-4)  
(Formerly Zool. 304)

Elementary structure, description, and habits of the principal orders of insects. Laboratory work will consist of collecting, mounting, preserving, and classification of principal insect representatives. Recommended for general science and biological science majors. Prerequisite: Zoology 1512.

- 1554. Economic Entomology.** Credit 3(2-2)  
(Formerly Zool. 305)

Elementary structure, life histories, classification, and control of insect pests and related arthropods. Recommended for students majoring in one of the agricultural sciences. Prerequisite: Zoology 1512.

- 1556. Human Anatomy.** Credit 3(2-2)  
(Formerly Zool. 307)

Lectures, demonstrations and laboratory study emphasizing basic facts and principles of body structure. Not open to Biology majors. Prerequisite: Zoology 1512.

- 1565. Human Physiology.** Credit 3(2-2)  
(Formerly Zool. 401)

Lectures and laboratory demonstrations of functional activity of common laboratory animals. This introductory course correlates physiological principles with the performance of the integrated organ systems of man. Required of majors in Physical Education. Not open to Biology majors. Prerequisite: Zoology 1556.

- 1566. Vertebrate Embryology.** Credit 4(2-4)  
(Formerly Zool. 402-403)

Study of the developmental stages of selected vertebrates. The materials are treated comparatively and consist of amphibian, bird, rodent, and references to mammalian forms. Prerequisite: Zoology 1531 or special consent of instructor.

- 1567. Introductory Physiology.** Credit 4(2-4)  
(Formerly Zool. 404)

A treatment at the molecular level of the fundamental processes of living systems. Laboratory work consists of selected experiments in extraction, hydrolysis, fractionation, paper chromatography, enzyme studies, and transport. Experimental procedures involving the physiology of movement, respiration, blood and nerve transmission also will be included.

- 1568. Seminar in Biology.** Credit 1(1-0)  
(Formerly Zool. 405)

A seminar on selected topic and recent advances in the field of plant and animal biology. This course is required of all juniors and seniors.

- 1569. Seminar in Biology.** Credit 1(1-0)

A continuation of Zoology 1568.

#### **Advanced Undergraduate and Graduate**

- 1574. Special Problems in Zoology.** Credit 3(2-2)  
(Formerly Zool. 501)

Open to students qualified to do research in Zoology.

1575. **Mammalian Biology.** Credit 3(3-0)  
(Formerly Zool. 502)

Study of the evolutionary history, classification, adaptation and variation of representative mammals with special emphasis on the prenatal variations in prototherian, metatherian and eutherian types. Prerequisites: Zoology 1512 and Botany 1507.

1576. **Biology of Sex.** Credit 3(3-0)  
(Formerly Zool. 503)

Lectures on the origin and development of the germ cells and reproductive systems in selected animal forms. Prerequisite: Zoology 1512 or equivalent.

1577. **Cytology.** Credit 3(3-0)  
(Formerly Zool. 504)

Study of the cell with lectures and periodic student reports on modern advances in cellular biology. Prerequisite: Zoology 1551 or special consent of instructor.

1578. **Histo-Chemical Technique.** Credit 3(2-2)  
(Formerly Zool. 505)

Designed to develop skills in the preparation of cells, tissues and organs for microscopic observation and study. Prerequisite: Zoology 1512.

1579. **Nature Study.** Credit 3(3-0)  
(Formerly Zool. 506)

A study of diversified organisms, their habits, life histories, defenses, sex relationships, periodic activities and economic values designed to acquaint the student with fundamental knowledge that should lead to a fuller appreciation of nature.

1580. **Experimental Embryology.** Credit 3(1-4)  
(Formerly Zool. 507)

A comprehensive lecture-seminar course covering the more recent literature on experimental embryology and development physiology. Experimental studies treating with amphibian, chick and rodent development are designed as laboratory projects. Prerequisite: Zoology 1566 or equivalent.

1581. **Animal Biology.** Credit 3(2-2)  
(Formerly Zool. 508)

A lecture-laboratory course stressing fundamental concepts and principles of biology with the aim of strengthening the background of high school teachers. Emphasis is placed on the principles of animal origin, structure, function, development, and ecological relationships.

### GRADUATE COURSES

These courses are open to graduate students only. See the bulletin of the Graduate School for course descriptions.

#### GRADUATE COURSES IN BOTANY

1585. **Essentials of Plant Anatomy.** (Formerly Botany 611) Credit 3(2-2)  
1586. **Applied Plant Ecology.** (Formerly Botany 612) Credit 3(2-2)  
1587. **Physiology of Vascular Plants.** Credit 3(2-2)  
5586. **Developmental Plant Morphology.** Credit 3(2-2)  
5587. **Plant Nutrition.** Credit 3(2-2)

**GRADUATE COURSES IN ZOOLOGY**

1588. Projects in Biology. (Formerly Zoology 601)	Credit 2(0-4)
1589. Seminar in Biology. (Formerly Zool. 602)	Credit 1(1-0)
1590. Applied Invertebrate Zoology. (Formerly Zoology 611)	Credit 3(2-2)
1591. Fundamentals of Vertebrate Morphology. (Formerly Zoology 612)	Credit 3(2-2)
1592. Basic Protozoology. (Formerly Zoology 613)	Credit 3(2-2)
1953. Introductory Experimental Zoology. (Formerly Zoology 614)	Credit 3(2-2)
1594. Invertebrate Biology for Elementary and Secondary School Teachers. (Formerly Zoology 615)	Credit 3(3-0)
1595. Genetics and Inheritance for the Secondary School Teacher.	Credit 3(2-2)
1596. Functional Invertebrate Zoology.	Credit 3(1-4)
1598. Cellular Physiology.	Credit 4(2-4)
5588. Advanced Genetics.	Credit 3(2-2)
5585. Parasitology.	Credit 3(2-2)
5592. Research in Botany.	3 Credit Hours
or	
5593. Research in Zoology.	3 Credit Hours

**GRADUATE COURSES IN BIOLOGY**

1597. Experimental Methods in Biology.	Credit 3(1-4)
1599. Seminar in Biology.	Credit 3(2-2)
1589. Environmental Biology.	Credit 3(2-2)
1590. Biological Seminar.	Credit 1(1-0)
1591. Biological Seminar.	Credit 1(1-0)

**DEPARTMENT OF CHEMISTRY**

GERALD A. EDWARDS, *Chairman*

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The Department of Chemistry offers two major curricula leading to the Bachelor of Science degree. The curriculum of the professional major is designed to meet the needs of students planning to begin professional careers in chemistry upon graduation, to engage in further study in the field at the graduate level, or planning to enter medical, dental, or other professional schools. This program requires that the student complete 44\* semester hours in basic chemistry courses and four to eight semester hours in advanced chemistry courses. The teaching major is designed



to give the student a thorough foundation in chemistry while meeting the requirements for certification as a teacher at the secondary school level. It requires a minimum of 39\* semester hours credit in chemistry. This curriculum differs from the customary teaching major in that it provides sufficient training for a professional career in chemistry or in teaching at the secondary school level. One who follows this curriculum could subsequently do bonafide work at the graduate level in chemistry.

It is intended that the two curricula would be identical in the freshman and sophomore years so that a student need not reach a final decision regarding his choice of a profession until the beginning of the third year.

### Suggested Programs for Chemistry Majors

#### PROFESSIONAL MAJOR CURRICULUM

##### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1611, 1612 .....	4	4
Chemistry 1617 .....	—	1
English 2401, 2402 .....	4	4
Mathematics 3611, 3613 .....	4	4
Social Science 2800, 2801 .....	3	3
Education 2100 .....	1	—
Physical Education .....	1	1
Air, Military Science or Electives .....	1	1
	<hr/> 18	<hr/> 18

##### Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1621, 1622 .....	5	5
Chemistry 1623 .....	—	4
Mathematics 3621 .....	4	—
Physics 3821, 3822 .....	5	4
Physical Education .....	1	1
Air, Military Science or Electives .....	2	2
	<hr/> 17	<hr/> 17

##### Junior Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1663, 1664 .....	4	4
Chemistry 1662 .....	—	4
Chemistry 1641 .....	2	—
Humanities 2434, 2435 .....	3	3
Electives .....	3	3
German 2502, 2503 .....	3	3
Mathematics 3622 .....	4	—
	<hr/> 20	<hr/> 18



**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1678 .....	3	—
Chemistry 1661 .....	—	2
Chemistry Electives .....	3	5
German 2529 .....	3	—
Electives .....	6	5
	—	—
	15	12
Grand Total of Hours	135	

**TEACHING MAJOR CURRICULUM****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1611, 1612 .....	4	4
Chemistry 1617 .....	—	1
English 2401, 2402 .....	4	3
Mathematics 3611, 3613 .....	4	4
Social Science 2800, 2801 .....	3	3
Health Education 2700 .....	—	2
Education 2100 .....	1	—
Physical Education .....	1	1
Air, Military Science or Electives .....	1	1
	—	—
	18	20

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2120, 2121 .....	2	2
Chemistry 1621, 1622 .....	5	5
Chemistry 1623 .....	—	4
Mathematics 3621 .....	4	—
Physics 3821, 3822 .....	5	5
Air, Military Science or Electives .....	2	2
	—	—
	18	18

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1663, 1664 .....	5	5
Mathematics 3622 .....	4	—
Chemistry 1662 .....	—	4
Education 2154 .....	—	3
Psychology 2320 .....	3	—
Electives .....	3	3
Humanities 2434, 2435 .....	3	3
	—	—
	18	18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Zoology 1512 .....	4	—
Botany 1527 .....	4	—
English 2425 .....	2	—
Earth Science 1429 .....	3	—
Education 2140 .....	—	3
Education 2150 .....	—	3
Education 2161 .....	—	6
Psychology 2341 .....	3	—
<b>TOTAL HOURS</b>	<b>138</b>	<b>12</b>

**COURSES IN PHYSICAL SCIENCE****Undergraduate**

- 1601. Physical Science.** Credit 4(3-2)  
(Formerly Phy. Sc. 101 and 102)

A course for non-science majors devoted to a study of the physical universe and an understanding of matter, energy, and their transformations. This course is offered in cooperation with the Departments of Physics and Plant Science and Technology.

**COURSES IN CHEMISTRY****Undergraduate**

- 1611. General Chemistry I.** Credit 4(3-3)  
(Formerly Chem. 101 and 102)

Introduction to the study of chemistry, atomic structure and periodicity, chemical bonding, states of matter and phase transitions, solutions, and electrolytes. This course is designed for majors in chemistry, engineering, and other sciences.

- 1612. General Chemistry II.** Credit 4(3-3)  
(Formerly Chem. 102 and 103)

A continuation of general chemistry including an introduction to qualitative inorganic analysis. Prerequisite: Chemistry 1611.

- 1614. General Chemistry III.** Credit 4(3-3)  
(Formerly Chem. 104)

A continuation of general chemistry with an emphasis on organic chemistry. This course is recommended as a terminal course for non-science majors. Prerequisite: Chemistry 1611.

- 1615. General Chemistry IV.** Credit 4(3-3)  
(Formerly Chem. 105 and 106)

Introduction to fundamental techniques and concepts in chemistry; includes writing and interpretation of symbols, formulas, equations, atomic structure, composition, and reactions of inorganic and organic compounds.

- 1616. General Chemistry V.** Credit 4(3-3)  
(Formerly Chem. 106 and 107)

A continuation of organic chemistry, and a study of the chemical changes taking place during life processes. Prerequisites: Chemistry 1615 or equivalent.

- 1617. Chemistry Orientation.** Credit 1(1-0)  
(Formerly Chem. 108)

A series of lectures and discussions on the nature and requirements of and chemical profession; the application of chemistry to modern living; and other selected topics.

- 1621. Organic Chemistry I.** Credit 5(3-6)  
(Formerly Chem. 221 and 222)

The study of the hydrocarbons (aliphatic and aromatic) and introduction to their derivatives. Prerequisite: Chemistry 1612 or 1614.

- 1622. Organic Chemistry II.** Credit 5(3-6)  
(Formerly Chem. 222 and 223)

Continuation of the study of derivatives of hydrocarbons and the more complex compounds. Prerequisite: Chemistry 1621.

- 1623. Quantitative Analysis I.** Credit 4(2-6)  
(Formerly Chem 331)

Titrimetric and gravimetric analyses including theory and calculations associated with acid-base equilibria, oxidation-reduction, nucleation, and precipitation-complexation processes. Prerequisite: Chemistry 1612.

- 1624. Elementary Biochemistry.** Credit 3(2-3)  
(Formerly Chem. 251)

A study of fundamental cellular constituents. Emphasis is placed on physiological applications and analyses. Prerequisites: Chemistry 1614 or 1622. This course is open to non-chemistry majors only.

- 1641. Current Trends in Chemistry.** Credit 2(2-0)  
(Formerly Chem. 301, 302, 401, and 402)

A series of lectures and discussions on special problems in chemistry and of the chemical profession not covered in formal courses. The course includes an introduction to the chemical literature.

- 1661. Introduction to Chemical Research.** Credit 2(0-6)  
(Formerly Chem. 403)

Makes use of the laboratory and library facilities in studying minor problems of research. Prerequisite: Advanced standing and permission of the Department.

- 1662. Quantitative Analysis II.** Credit 4(2-6)  
(Formerly Chem. 431)

Selected analytical determinations and introduction to elementary instrumental chemical analysis including calculations and theory associated with spectrophotometric and electroanalytical measurements. Prerequisite: Chemistry 1663. Corequisite: Chemistry 1664.

- 1663. Physical Chemistry I.** Credit 4(3-3)  
(Formerly Chem. 441 and 442)

Atomic and nuclear structure, gaseous and crystalline states, physical properties and molecular structure, the laws of thermodynamics, studies of the liquid state, and solutions. Prerequisites: Physics 3821, Math. 3622, Chemistry 1622 and 1623, and Physics 3822, concurrently.

- 1664. Physical Chemistry II.** Credit 4(3-3)  
(Formerly Chem. 442 and 443)

A study of Chemical Kinetics, electric conductance, ionic, equilibria, chemical equilibria, phase diagrams, and colloids. Prerequisite: Chemistry 1663.

**Advanced Undergraduate and Graduate**

- 1677. Inorganic Synthesis.** Credit 2(2-0)  
(Formerly Chem. 510)

Discussion of theoretical principles of synthesis and development of manipulative skills in the synthesis of inorganic substances. Prerequisites: One year of organic chemistry; one semester of quantitative analysis.

- 1678. Advanced Inorganic Chemistry.** Credit 2(2-0)  
(Formerly Chem. 511)

A sequence course in the theoretical approach to the systematization of inorganic chemistry. Prerequisites: Chemistry 1663, 1664 concurrent.

- 1679. Advanced Inorganic Chemistry II.** Credit 2(2-0)  
(Formerly Chem. 512)

Continuation of Advanced Inorganic Chemistry I. Prerequisite: Chem. 1664.

- 1771. Qualitative Organic Chemistry.** Credit 4(2-6)  
(Formerly Chem. 524)

A course in the systematic identification of organic compounds. Prerequisite: One year of Organic Chemistry.

- 1772. Instrumental Methods of Analysis.** Credit 4(2-6)  
(Formerly Chem. 531)

A study of the theory and the operational features of some of the more important instruments that are currently being used as analytical tools such as U.V., visible-light, and infrared spectrophotometers, electroanalytical instruments, thermometric titrators, fluoreimeters, etc. Prerequisite: Chemistry 1662 or equivalent.

- 1773. Radiochemistry.** Credit 4(3-3)  
(Formerly Chem. 541)

A study of the fundamental concepts, processes, and applications of nuclear chemistry, including natural and artificial radioactivity, sources, and chemistry of the radioelements. Open to advanced majors and others with sufficient background in chemistry and physics. Prerequisites: Chemistry 1664 or Physics 3846.

- 1774. Radioisotope Techniques and Applications.** Credit 2(1-3)  
(Formerly Chem. 542)

The techniques of measuring and handling radioisotopes and their use in chemistry, biology, and other fields. Open to majors and non-majors. Prerequisite: Chemistry 1612 or 1614.

- 1775. Introduction to Quantum Mechanics.** Credit 2(2-0)  
(Formerly Chem. 543)

Non-relativistic wave mechanics and its application to simple systems by means of the operator formulation. Prerequisites: Math. 3622, Physics 3822, and Chemistry 1664 prior or concurrent.

- 1777. General Biochemistry.** Credit 4(3-3)  
(Formerly Chem. 551)

A study of modern biochemistry designed for graduate students. The course emphasizes chemical kinetics and energetics associated with biological reactions and includes a study of carbohydrates, lipids, proteins, vitamins, nucleic acids, hormones, photosynthesis and respiration. Prerequisites: Chemistry 1662 and 1664.

**GRADUATE COURSES**

These courses are open to graduate students only. See the bulletin of the Graduate School for course descriptions.

1682. Seminar (Formerly Chem. 601)	Credit 1(1-0)
1082. Chemical Research I (Formerly Chem. 602)	Credit 2(0-6)
1083. Chemical Research II (Formerly Chem. 602)	Credit 3(0-9)
1084. Chemical Research III (Formerly Chem. 602)	Credit 4(0-12)
1683. Structural Inorganic Chemistry (Formerly Chem. 611)	Credit 2(2-0)
1685. Selected Topics in Inorganic Chemistry (Formerly Chem. 616)	Credit 2(2-0)
1085. Special Problems in Inorganic Chemistry I (Formerly Chem. 615)	Credit 2(0-6)
1086. Special Problems in Inorganic Chemistry II (Formerly Chem. 615)	Credit 3(0-9)
1687. Elements of Organic Chemistry (Formerly Chem. 621)	Credit 3(2-3)
1688. Advanced Organic Chemistry I (Formerly Chem. 622)	Credit 2(2-0)
1689. Advanced Organic Chemistry II (Formerly Chem. 623)	Credit 2(2-0)
1690. Organic Reactions (Formerly Chem. 624)	Credit 2(2-0)
1088. Special Problems in Organic Chemistry I (Formerly Chem. 625)	Credit 2(0-6)
1089. Special Problems in Organic Chemistry II (Formerly Chem. 625)	Credit 3(0-9)
1691. Selected Topics in Organic Chemistry (Formerly Chem. 626)	Credit 2(2-0)
1692. Organic Preparations I (Formerly Chem. 627)	Credit 1(0-2)
1693. Organic Preparations II (Formerly Chem. 627)	Credit 2(0-4)
1694. Modern Analytical Chemistry (Formerly Chem. 631)	Credit 3(2-3)
1695. Advanced Analytical Chemistry I (Formerly Chem. 632)	Credit 2(2-0)
1696. Advanced Analytical Chemistry II (Formerly Chem. 633)	Credit 2(2-0)
1091. Special Problems in Analytical Chemistry I (Formerly Chem. 635)	Credit 2(2-0)

1092. Special Problems in Analytical Chemistry II (Formerly Chem. 635)	Credit 3(0-9)
1699. Selected Topics in Analytical Chemistry (Formerly Chem. 636)	Credit 2(2-0)
1782. Principles of Physical Chemistry I (Formerly Chem. 641)	Credit 4(3-3)
1783. Principles of Physical Chemistry II (Formerly Chem. 642)	Credit 4(3-3)
1784. Chemical Thermodynamics (Formerly Chem. 643)	Credit 2(2-0)
1785. Chemical Spectroscopy (Formerly Chem. 644)	Credit 3(2-3)
1094. Special Problems in Physical Chemistry I (Formerly Chem. 645)	Credit 2(0-6)
1095. Special Problems in Physical Chemistry II (Formerly Chem. 645)	Credit 3(0-9)
1786. Selected Topics in Physical Chemistry. (Formerly Chem. 646)	Credit 2(2-0)
1788. Colloid Chemistry (Formerly Chem. 648)	Credit 2(2-0)
1789. Chemical Kinetics (Formerly Chem. 649)	Credit 2(2-0)
1097. Special Problems in Biochemistry I (Formerly Chem. 655)	Credit 2(0-6)
1098. Special Problems in Biochemistry II (Formerly Chem. 655)	Credit 3(0-9)
1794. Selected Topics in Biochemistry (Formerly Chem. 656)	Credit 2(2-0)
1799. Thesis Research (Formerly Chem. 699)	Credit 6 Sem. Hrs.

## DEPARTMENT OF MATHEMATICS

HERBERT M. HEUGHAN, *Acting Chairman*

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### PROGRAMS AND OBJECTIVES

The Department of Mathematics offers two programs leading to the bachelor of Science degree.

The two programs are: the baccalaureate degree in engineering mathematics and the baccalaureate degree in mathematics.

Students enrolled in either program must pass a comprehensive examination in mathematics.



**Objectives of the Engineering Mathematics Program**

1. To prepare the student to do graduate study in applied mathematics.
2. To prepare the student for service in industry and government.
3. To prepare the student for independent investigations in the areas of science and mathematics.
4. To inspire the student with the desire for continued growth in areas of mathematical inquiry.

**Objectives of the Mathematics Program**

1. To prepare the student for graduate study in the area of mathematics and professional education.
2. To prepare the teacher of mathematics to present mathematics in a modern, meaningful, stimulating manner at the secondary level.
3. To prepare the teacher with sufficient quantity and quality of mathematics to provide competent counseling in the several opportunities available in mathematics.
4. To develop in the teacher an appreciation for mathematical rigor, and an appreciation of mathematics as an art as well as a tool.
5. To develop in the teacher an understanding of and an appreciation for the development of mathematics from antiquity to the present.
6. To inspire in the prospective teacher a desire for continued growth in areas of mathematical inquiry.

**THE ENGINEERING MATHEMATICS PROGRAM\*****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mathematics 3616, 3617 .....	5	5
Chemistry 1611, 1612 .....	4	4
English 2401, 2402 .....	4	4
Mechanical Engineering 3701, 3702 .....	2	2
Electives or Air or Military Science .....	1	1
	<hr/> 16	<hr/> 16

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mathematics 3645, 3646 .....	4	4
Mathematics 3641, 3642 .....	3	3
Physics 3821, 3822 .....	5	5
Social Science 2800, 2801 .....	3	3
Electives or Air or Military Science .....	2	2
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\* Offered in cooperation with the School of Engineering.

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mathematics 3664, 3665 .....	3	3
Mathematics 3662, 3663 .....	3	3
Mechanical Engineering 3741, 3742 .....	3	3
English 2425 .....	2	3
Physics 3846 .....	—	3
Humanities 2434, 2435 .....	3	3
Health Education 2700 .....	—	2
Electives .....	3	3
	<hr/> 17	<hr/> 20

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Physics 3840, 3841 .....	3	3
Mathematics 3624, Elective .....	3	3
Mathematics 3667, 3668 .....	3	3
Economics 2840, 2841 .....	3	3
Foreign Language (French or German) ...	3	3
Electives .....	3	3
	<hr/> 18	<hr/> 18

**PROGRAM FOR MATHEMATICS MAJOR (Teacher Education)****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mathematics 3611, 3613 .....	4	4
Chemistry 1611, 1612 .....	4	4
English 2401, 2402 .....	4	4
Social Science 2800, 2801 .....	3	3
Physical Education .....	1	1
Health Education 2700 .....	—	2
Education 2100 .....	1	—
Air or Military Science or Electives .....	1	1
	<hr/> 18	<hr/> 19

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mathematics 3621, 3622 .....	4	4
Mathematics 3624, 3643 .....	3	3
Physics 3825, 3826 .....	4	4
Humanities 2434, 2435 .....	3	3
Education 2120, 2121 .....	2	2
Air or Military Science or Electives .....	2	2
	<hr/> 18	<hr/> 18

Male students who are not veterans or foreign students may enroll in either Air or Military Science.

NOTE: The Engineering Mathematics Program requires 139 semester hours, of which at least 36 hours must be in mathematics courses beyond the freshman level.

The Mathematics Program requires 136 hours, of which at least 37 hours must be in mathematics courses beyond the freshman level.

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mathematics 3645, 3668 .....	4	3
Mathematics 3667, 3664 .....	3	3
Foreign Language (French or German) ....	3	3
Mathematics 3677 .....	—	3
Education 2154 .....	—	3
Psychology 2320 .....	3	—
English 2425 .....	2	—
Free Electives .....	3	3
	<hr/> 18	<hr/> 18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mathematics 3665 .....	3	—
Mathematics 3662 .....	3	—
Mathematics 3660 .....	1	—
Education 2140, 2147, 2161 .....	—	12
Psychology 2341 .....	3	—
Electives .....	5	—
	<hr/> 15	<hr/> 12

**COURSES IN MATHEMATICS****Undergraduate**

- 3600. Intermediate Mathematics.** Credit 3(3-0)  
(Formerly Math. 100)

Elementary properties of the real number system, basic algebra through quadratics. Required of students who fail the mathematics entrance examination. Prerequisite: 1 Unit Algebra, 1 Unit High School Geometry.

- 3601. Freshman Mathematics I.** Credit 3(3-0)  
(Formerly Math. 101, 102)

Axiomatic systems, algebraic structure of the real number system, basic algebra and trigonometry, introduction to analytic geometry and calculus. Prerequisites: 1 Unit High School Algebra, 1 Unit High School Plane Geometry and a passing score on the mathematics entrance examination.

- 3602. Freshman Mathematics II.** Credit 3(3-0)  
(Formerly Math. 102, 103)  
Continuation of Mathematics 3601.

- 3610. Preparatory Engineering Mathematics.** Credit 4(4-2)  
(Formerly Math. 9695)

Algebraic properties of the number systems, fundamental operations, exponents and radicals, functions and graphs, solutions of equations and systems of equations, trigonometric functions and identities, inequalities logarithms, progressions, mathematical induction, binomial theorem, permutations and combination and determinants. Prerequisites: 1 unit of high school algebra and 1 unit of high school geometry.

- 3611. College Algebra and Trigonometry.** Credit 4(4-0)  
(Formerly Math. 111, 112)

Elementary logic and the abstract nature of mathematics; structure of the real number system, polynomials and rational functions; linear systems and matrices, inequalities; sets, relations functions; trigonometric, logarithmic, exponential functions. Prerequisites: 1 Unit Plane Geometry and 2 Units of High School Algebra.

- 3613. Analytic Geometry and Calculus.** Credit 4(4-0)  
(Formerly Math. 113, 221)

Analytic geometry of lines and circles; functions, limits and derivatives and applications, integrals and applications, infinite series, general analytic geometry of two and three dimension, functions of several variables, multiple integration, line and surface integral. Prerequisite: Math. 3611 or Math. 3610.

- 3615. Mathematics of Business and Finance.** Credit 3(3-0)  
(Formerly Math. 115)

Simple interest, discount, partial payments, payroll, wages and commission accounts, discounts and mark-ups, retailing, taxes, distribution of ownership, transactions in corporate securities, insurance, compound interest, annuities, amortization and sinking funds. Prerequisites: Math. 3611 or Math. 3601, or Math. 3610.

- 3616. Engineering Mathematics I.** Credit 5(4-2)

A review of the basic principles of preparatory engineering mathematics, analytic geometry of two and three space, differentiation coordinates, infinite sequences and series, partial differentiation and multiple integrals. Prerequisites: Mathematics 3610 or two units algebra, one unit geometry, one-half unit trigonometry and a passing score on the placement examination.

- 3617. Engineering Mathematics II.** Credit 5(4-2)

Continuation of Math. 3616. Prerequisite: Math. 3616.

- 3620. History of Mathematics.** Credit 3(3-0)  
(Formerly Math. 214)

A survey of the development of mathematics by chronological periods, with biographical references, illustrations of national and racial achievements, and discussions of the evolution of certain important topics of elementary mathematics. Prerequisite: Math. 3621.

- 3621. Analytic Geometry and Calculus.** Credit 4(4-0)  
(Formerly Math. 221, 222)

Continuation of Math. 3613.

- 3622. Analytic Geometry and Calculus.** Credit 4(4-0)  
(Formerly Math. 222, 223)

Continuation of Math. 3621.

- 3623. Theory of Equations.** Credit 3(3-0)  
(Formerly Math. 216)

Methods of solving cubics, quartics and other higher algebraic equations. Methods of approximating roots, systems of equations, elements of determinants. Prerequisite: Math. 3622.

- 3624. Elementary Mathematical Statistics.** Credit 3(3-0)  
(Formerly Math. 218)

A general course covering fundamentals of statistics, central tendencies, variabilities, graphic methods, frequency distributions, correlations, reliability of measures, theory and methods of sampling, and the descriptive and analytical measures of statistics. Prerequisite: Math. 3611.

**3641. Introduction to the Programming of****Digital Computers.**

Credit 3(2-2)

(Formerly Math. 301)

Flow charts, machine language, e.g. FORTRAN, preparation of cards and tapes, number systems, typical programs for solution on standard computers. Mathematical essentials for computer programming; e.g. approximation methods, error functions, iteration schemes, and numerical solutions of equations. Prerequisite: Math. 3613.

**3642. Numerical Methods.**

Credit 3(2-2)

(Formerly Math. 519)

Study of numerical methods as related to programming techniques covering the following topics, interpolation and extrapolation, approximate solutions of algebraic and transcendental equations, simultaneous linear equations, initial-value, characteristic-value, and boundary-value problems, partial differential equations of the hyperbolic, parabolic, and elliptic types. Corequisite: Math. 3641.

**3643. College Geometry.**

Credit 3(3-0)

(Formerly Math. 508)

Properties of sets, operations on sets, elements of symbolic logic, properties of postulational system, the defects of Euclid's system, the Hilbert axioms, a general survey of the axioms of non-Euclidean systems. Prerequisite: High School geometry.

**3645. Ordinary Differential Equations.**

Credit 4(4-0)

(Formerly Math. 331)

Solution of linear and non-linear differential equations with application to mechanics and electricity; introduction to elementary difference equations. Prerequisite: Math. 3622 or 3617.

**3646. Introduction to Applied Mathematics.**

Credit 4(4-0)

(Formerly Math. 332)

Fourier Series and integrals, orthogonal polynomials, transform calculi, residue calculus, special function, boundary value problems, partial differential equations, vectors. Prerequisite: Math. 3645.

**3660. Seminar in Mathematics.**

Credit 1(1-0)

(Formerly Math. 400)

Methods of preparing and presenting seminars, presentation of seminars in current developments in mathematics and/or topics of interest which are not included in formal courses. Required of mathematics majors. Prerequisite: Twenty hours of college mathematics.

**3662. Intermediate Analysis I.**

Credit 3(3-0)

(Formerly Math. 503)

A rigorous treatment of the fundamental principles of analysis; limits and continuity sequence and series, differentiability and integrability, analysis of function of several variables. Prerequisite: Math. 3622 or Math. 3617.

**3663. Intermediate Analysis II.**

Credit 3(3-0)

(Formerly Math. 504)

Continuation of Math. 3662. Prerequisite: Math. 3662.

**3664. Abstract Algebra I.**

Credit 3(3-0)

(Formerly Math. 511)

Elementary properties of sets, Peano axioms and the construction of the natural number system, properties of the integers, integral domains, groups, rings, fields, vector spaces, lattices and partially ordered sets. Prerequisite: Twenty hours of college mathematics.



- 3665. Abstract Algebra II.** Credit 3(3-0)  
(Formerly Math. 512)

Continuation of Math. 3664. Prerequisite: Math. 3664.

- 3667. Linear Algebra and Matrix Theory I.** Credit 3(3-0)  
(Formerly Math. 513)

Real and complex finite dimensional vector spaces, conjugate spaces, theory of linear transformation, linear operations, matrices, canonical representations, infinite dimensional space with an introduction to functional analysis. Prerequisite: Math. 3622 or Math. 3617.

- 3668. Linear Algebra and Matrix Theory II.** Credit 3(3-0)  
(Formerly Math. 514)

Continuation of Math. 3667. Prerequisite: Math. 3667.

- 3669. Vector Analysis.** Credit 3(3-0)  
(Formerly Math. 520)

A study of the processes of vector analysis, with a treatment of the vector functions and operations as applied in theoretical work. Prerequisite: Math. 3646.

### Advanced Undergraduate and Graduate

- 3670. Introduction to Modern Mathematics for  
Secondary School Teachers.** Credit 3(3-0)  
(Formerly Mathematics 502)

Elementary theory of sets, elementary logic and postulational systems, nature and methods of mathematical proofs, structure of the real number system. Open only to inservice teachers, or by permission of Department of Mathematics.

- 3671. Algebraic Equations for  
Secondary School Teachers.** Credit 3(3-0)  
(Formerly Math. 501)

Algebra of sets, solution sets for elementary equations, linear equations and linear systems of equations, matrices and determinants with applications to the solution of linear systems. Prerequisite: Math. 3670.

- 3672. Modern Algebra for Secondary School Teachers.** Credit 3(3-0)

Sets and mappings, properties of binary operations, groups, rings, integral domains, vector spaces and fields. Prerequisite: Math. 3670.

- 3673. Modern Analysis for Secondary School Teachers.** Credit 3(3-0)

Properties of the real number system, functions, limits, sequences, continuity, differentiation and differentiability, integration and integrability. Prerequisite: Math. 3670.

- 3674. Modern Geometry for Secondary School Teachers.** Credit 3(3-0)

Re-examination of Euclidean geometry, axiomatic systems and the Hilbert axioms, introduction to projective geometry, other non-euclidean geometries. Prerequisite: Math. 3670.

- 3676. Mathematics for Chemists.** Credit 3(3-0)  
(Formerly Math. 509)

This course will review those principles of mathematics which are involved in chemical computations and derivations from general through physical chemistry. It will include a study of significant figures, methods of expressing large and small numbers, algebraic operations, trigonometric functions, and an introduction to calculus.



- 3677. Theory of Numbers.** Credit 3(3-0)  
(Formerly Math. 3687)

Divisibility properties of the integers, Euclid algorithm, congruences, diophantine equations, number-theoretic functions, and continued fractions. Prerequisite: Twenty hours of college mathematics.

- 3678. Mathematics of Life Insurance.** Credit 3(3-0)  
(Formerly Math. 3686)

Probability, mortality table, life insurance, annuities, endowments, computation of net premiums, evaluation of policies, construction and use of tables. Prerequisite: Math. 3624.

- 3682. Elements of Set Theory and Topology.** Credit 3(3-0)  
(Formerly Math. 515)

Operations on sets, relations, correspondences, comparison of sets, functions, ordered sets, general topological spaces, metric spaces, continuity, connectivity, compactness, homeomorphic spaces, general properties of  $T$ -spaces. Prerequisite: Math. 3622.

- 3683. Mathematical Statistics.** Credit 3(3-0)  
(Formerly Math. 516)

Introduction to probability, distribution functions and moment-generating functions, frequency distribution of two variables, development of chi-square, student's "T" and "F" distributions. Prerequisite: Math. 3622.

- 3684. Methods of Applied Statistics.** Credit 3(3-0)  
(Formerly Math. 517)

Presents the bases of various statistical procedures. Applications of normal, binomial, Poisson, chi-square, student's "T" and "F" distributions. Tests of hypotheses, power of tests, statistical inference, regression and correlation analysis and analysis of variance. Prerequisite: Math. 3624.

- 3685. Modern Mathematics for Elementary Teachers I.** Credit 3(3-0)  
(Formerly Math. 510)

This course affords a background of the beginning numbers, concepts and counting, a study of various number bases, and fundamental processes and their application and problem solving. No credit toward a degree in mathematics.

- 3686. Modern Mathematics for Elementary Teachers II.** Credit 3(3-0)  
Continuation of Math. 3685. Prerequisite: Math. 3685.

### Graduate

These courses are open only to graduate students. For descriptions of them, see the bulletin of the Graduate School.

- 3690. Theory of Functions of A Real Variable I.** Credit 3(3-0)  
(Formerly Math. 600)

- 3691. Theory of Functions of A Real Variable II.** Credit 3(3-0)  
(Formerly Math. 601)

- 3692. Theory of Functions of A Complex Variable I.** Credit 3(3-0)  
(Formerly Math. 602)

- 3693. Theory of Functions of A Complex Variable II.** Credit 3(3-0)  
(Formerly Math. 603)

- 3694. Projective Geometry.** Credit 3(3-0)  
(Formerly Math. 604)

3695. **Special Topics in Algebra.** Credit 3(3-0)  
(Formerly Math. 605)
3696. **Special Topics in Analysis.** Credit 3(3-0)  
(Formerly Math. 606)

## DEPARTMENT OF PHYSICS

DONALD A. EDWARDS, *Chairman*

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The purposes of the courses offered by the Department of Physics are:

1. To train students desiring to meet the urgent need for physicists in industrial or civil service research laboratories, and to provide them with courses required for graduate study.
2. To train teachers of physics for the secondary schools.
3. To provide the fundamental and advanced courses required by majors in other areas.
4. To provide non-science students with experiences which will give a greater appreciation of the present and future importance of physics in a space age of machines and atomic energy.

Students electing Engineering Option will supplement the minimum of courses outlined below by selecting electives as directed by the Department of Physics. Seminar courses are required of all junior and senior majors.

Students failing the entrance mathematics tests must attend summer school at the end of the first year in order to graduate on schedule. Certain sequence courses will require this.

All majors are strongly urged to take English 2403, Developmental Reading 1(1-0), if possible during the first semester of the freshman year.

### TEACHING OPTION

#### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Social Science 2800, 2801 .....	3	3
Chemistry 1611, 1612 .....	4	4
Mathematics 3611, 3613 .....	4	4
Physical Education .....	1	1
Education 2100 .....	1	—
Air or Military Science or Electives .....	1	1
	<hr/> 18	<hr/> 17

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Psychology 2320 .....	3	—
Education 2120 .....	—	2
Humanities 2434, 2435 .....	3	3
Mathematics 3621, 3622 .....	4	4
Physics 3825, 3826 .....	4	4
English 2425 .....	2	—
Health Education 2700 .....	—	2
Air or Military Science or Electives .....	2	2
	<hr/> 18	<hr/> 17

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mathematics 3645 .....	4	—
Physics 3840, 3843 .....	3	3
Physics 3846 .....	—	3
Physics 3851, 3852 .....	1	1
Education 2121, 2154 .....	2	3
Botany 1507 .....	—	4
Electives (other than ROTC) .....	6	3
	<hr/> 16	<hr/> 17

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Zoology 1512 .....	4	—
Education 2161 .....	—	6
Physics 3865 .....	3	—
Education 2140 .....	—	3
Psychology 2341 .....	3	—
Education 2150 .....	—	3
Physics 3845 .....	3	—
Physics 3844 .....	3	—
Physics 3861 .....	1	—
	<hr/> 17	<hr/> 12

**ENGINEERING PHYSICS OPTION****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
German 2502, 2503 .....	3	3
Mathematics 3616, 3617 .....	5	5
Physics 3821 .....	—	5
Education 2100 .....	1	—
Social Science 2800 .....	3	—
Air-M. Science or electives .....	1	1
	<hr/> 17	<hr/> 18

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mathematics 3645, 3646 .....	4	4
Physics 3822, 3842 .....	5	3
Mathematics 3641 .....	—	3
Chemistry 1611, 1612 .....	4	4
Social Science 2801 .....	—	3
Electives .....	3	—
Air-M. Science or electives .....	2	2
	<hr/> 18	<hr/> 19

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Humanities 2434, 2435 .....	3	3
Physics 3840, 3841 .....	3	3
Physics 3845, 3846 .....	3	3
Physics 3843 .....	—	3
Physics 3851, 3852 .....	1	1
Engineering electives .....	6	3
	<hr/> 16	<hr/> 16

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Physics 3874, 3875 .....	3	3
Physics 3872, 3873 .....	3	3
Physics 3865, 3866 .....	3	3
Physics 3844 .....	3	—
Engineering electives .....	—	3
Physics 3861, 3862 .....	1	1
Electives other than ROTC .....	3	3
	<hr/> 16	<hr/> 16

**COURSES IN PHYSICS****Undergraduate**

**3801. Survey of Physics.** Credit 3(2-2)  
(Formerly Phys. 111)

A study of selected topics in physics including simple machines, heat, sound, electricity, and light. Prerequisite: Math. 3611 or 3602.

**3821. General Physics I.** Credit 5(3-4)  
(Formerly Phys. 201, 202)

A study of the usual topics of physics with special emphasis on depth of understanding of basic principles. Includes one two-hour period per week for questions, problems, films, etc. Calculus used. For majors in engineering mathematics, engineering physics, chemistry, and other engineering majors. Corequisite: Math. 3617 or 3621.

- 3822. General Physics II.** Credit 5(3-4)  
(Formerly Phys. 202, 203)  
A continuation of Physics 3821. Prerequisite: Phys. 3821.
- 3825. College Physics I.** Credit 4(3-2)  
A study of the fundamental principles of mechanics, properties of matter, heat and thermometry, magnetism, direct and alternating current electricity, wave motion, sound, light, and atomic physics. Calculus not used. Prerequisite: Math. 3613 or 3616.
- 3826. College Physics II.** Credit 4(3-2)  
A continuation of Physics 3825. Prerequisite: Phys. 3825.
- 3840. Physical Mechanics I.** Credit 3(3-0)  
(Formerly Phys. 320)  
Includes motion of a particle, damped harmonic oscillator, central field motion, rotating coordinate systems, Fourier series in vibrating strings, Lagrange's equations. Vector analysis used. Prerequisite: Phys. 3822 or 3826. Corequisite: Math. 3645.
- 3841. Physical Mechanics II.** Credit 3(3-0)  
(Formerly Phys. 3861)  
A continuation of Physics 3840. Prerequisite: Phys. 3840.
- 3842. Heat and Thermodynamics.** Credit (33-0)  
(Formerly Phys. 360)  
Includes equations of state, laws of thermodynamics, entropy, fluid flow, heat transfer, single and two-phase mixtures, and statistical mechanics. Prerequisite: Phys. 3822. Corequisite: Math. 3645.
- 3843. Electricity and Magnetism I.** Credit 3(3-0)  
(Formerly Phys. 340)  
Includes DC and AC circuit theory, Gauss' Law. Poisson and Laplace equations, dielectric and magnetic materials, Maxwell's equations. Prerequisites: Phys. 3822 or 3826, Math. 3645.
- 3844. Physical Optics.** Credit 3(3-0)  
(Formerly Phys. 370)  
Emphasis on wave phenomena. Includes propagation, reflection, refraction of light, lenses and optical instruments, interference, diffraction, polarization, line spectra, thermal radiation. Prerequisites: Phys. 3822 or 3826, Math. 3622.
- 3845. X-Ray Diffraction Analysis.** Credit 3(3-0)  
(Formerly Phys. 385)  
An introductory course with emphasis upon the powder method, including X-ray sources, crystal shapes, and determinations of unit cell parameters and atomic positions. Prerequisites: Phys. 3846 or special permission.
- 3846. Modern Physics I.** Credit 3(3-0)  
(Formerly Phys. 380)  
Includes electromagnetic theory of radiation, kinetic theory of gases, specific heats, the electron, X-rays, spectra, radioactivity, nuclear physics and cosmic rays. Prerequisites: Phys. 3822 or 3826, Math. 3622.
- 3848. Solid State Physics.** Credit 3(3-0)  
(Formerly Phys. 387)  
Structure and imperfections in crystals and metals, energy levels of metals, semi-conductors, and their applications, insulators. Prerequisite: Phys. 3822 and preferably Phys. 3846.

3851. **Physics Seminar I.** Credit 1(1-0)  
A study of current developments in physics. Required of all junior and senior majors.
3852. **Physics Seminar II.** Credit 1(1-0)  
A continuation of Physics 3851.
3853. **Physics Research I.** Credit 2(0-6)  
Involves participation in research conducted by staff. Prerequisite: Consent of staff.
3854. **Physics Research II.** Credit 2(0-6)  
A continuation of Physics 3853.
3861. **Physics Seminar III.** Credit 1(1-0)  
A continuation of Physics 3852.
3862. **Physics Seminar IV.** Credit 1(1-0)  
A continuation of Physics 3861. All seminar courses required of all junior and senior majors.
3863. **Physics Research III.** Credit 2(0-6)  
A continuation of Physics 3854.
3864. **Physics Research IV.** Credit 2(0-6)  
A continuation of Physics 3863.
3865. **Advanced Laboratory I.** Credit 3(0-6)  
(Formerly 3871)  
A senior level course involving intensive study and careful performance of selected experiments in the various fields of physics. Prerequisite: Junior level courses in physics.
3866. **Advanced Laboratory II.** Credit 3(0-6)  
(Formerly Phys. 3872)  
A continuation of Physics 3865.

#### **Advanced Undergraduate and Graduate**

3871. **Physical Mechanics III.** Credit 3(3-0)  
(Formerly Phys. 3862)  
A continuation of Physics 3841. Prerequisite: Phys. 3841.
3872. **Electricity and Magnetism II.** Credit 3(3-0)  
(Formerly Phys. 3864)  
A continuation of Physics 3843. Prerequisite: Phys. 3843.
3873. **Electricity and Magnetism III.** Credit 3(3-0)  
(Formerly Phys. 3865)  
A continuation of Physics 3872. Prerequisite: Phys. 3872.
3874. **Modern Physics II.** Credit 3(3-0)  
(Formerly Phys. 3867)  
A continuation of Physics 3846. Prerequisite: Phys. 3846.
3875. **Modern Physics III.** Credit 3(3-0)  
(Formerly Phys. 3868)  
A continuation of Physics 3874. Prerequisite: Phys. 3874.



**3885. General Physics for Science Teachers I.** Credit 3(3-0)  
(Formerly Phys. 3880)

For persons engaged in the teaching of science. Includes two hours of lecture demonstration and one two-hour laboratory period per week. Emphasis is placed upon understanding the basic principles of physics. Both courses may be combined during a single semester for double credit. For science teachers only.

**3886. General Physics for Science Teachers II.** Credit 3(2-2)  
(Formerly Phys. 3881)

A continuation of Physics 3885.

**3887. Electricity for Science Teachers.** Credit 2(2-0)  
(Formerly Phys. 3882)

Includes electric fields potentials, direct current circuits, chemical and thermal emf's, electric meters, and alternating currents. For science teachers. Prerequisites: General Physics.

**3888. Modern Physics for Science Teachers I.** Credit 2(2-0)  
(Formerly Phys. 3883)

An introductory course covering the usual areas of modern physics. Both courses may be combined during a single semester for double credit. For science teachers only. Prerequisite: General Physics.

**3889. Modern Physics for Science Teachers II.** Credit 2(2-0)  
(Formerly Phys. 3884)

A continuation of Physics 3888.



# **DIVISION OF SOCIAL SCIENCES**

- **DEPARTMENT OF ECONOMICS**
- **DEPARTMENT OF HISTORY AND POLITICAL SCIENCE**
- **DEPARTMENT OF SOCIOLOGY**



## DEPARTMENT OF ECONOMICS

SIDNEY EVANS, *Acting Chairman*

The Department of Economics offers two majors: Economics and Agricultural Economics. The Agricultural Economics majors may choose to concentrate in either Agricultural Business or Agricultural Science. The former is concerned with the business or industrial phase of agriculture; the latter group would be more interested in graduate study and research. The Economics major is organized to equip students for graduate study in the field; careers in government service, industry and labor. It also serves as an excellent background for the study of law.

### REQUIRED COURSES FOR ECONOMICS MAJORS

<i>Course No.</i>	<i>Credit Hours</i>	<i>Course Name</i>
Econ. 2840	3	Principles of Economics
Econ. 2841	3	Principles of Economics
Econ. 2842	3	History of Economic Thought
Econ. 2860	3	Intermediate Economic Theory
Econ. 2862	3	National Income Analysis
Econ. 2864	3	Money and Banking
Econ. 2865	3	Elementary Statistics
Econ. 2866	3	Advanced Statistics

Electives from which at least 6 hours must be selected to complete the major requirements.

Econ. 2844	3	Public Finance
Econ. 2861	3	Economic Theory
Econ. 2863	3	Labor Problems
Econ. 2867	3	International Economic Relations
Econ. 2868	3	Business Cycles
Econ. 2877	3	Comparative Economic Systems

### REQUIRED COURSES FOR AGRICULTURAL BUSINESS MAJORS

<i>Course No.</i>	<i>Credit Hours</i>	<i>Course Name</i>
Econ. 2840	3	Principles of Economics
Econ. 2841	3	Principles of Economics
Ag. Econ. 1121	3	Introduction to Agricultural Economics
Ag. Econ. 1122	3	Elements of Farm Management
Ag. Econ. 1141	3	Marketing Agricultural Products
Ag. Econ. 1142	3	Agricultural Prices
Ag. Econ. 1177	3	Statistical Methods in Agricultural Economics I
Ag. Econ. 1178	3	Statistical Methods in Agricultural Economics II

At least fifteen hours of major electives must also be taken.

**REQUIRED COURSES FOR AGRICULTURAL SCIENCE MAJORS**

<i>Course No.</i>	<i>Credit Hours</i>	<i>Course Name</i>
Econ. 2840	3	Principles of Economics
Econ. 2841	3	Principles of Economics
Ag. Econ. 1121	3	Introduction to Agricultural Economics
Ag. Econ. 1122	3	Elements of Farm Management
Ag. Econ. 1141	3	Marketing Agricultural Products
Ag. Econ. 1142	3	Agricultural Prices
Ag. Econ. 1161	3	Intermediate Economic Theory
Ag. Econ. 1177	3	Statistical Methods in Agricultural Economics I
Ag. Econ. 1178	3	Statistical Methods in Agricultural Economics II

At least nine hours of major electives must also be taken.

Economics 2840 and 2841 are prerequisites for all courses in economics excepting statistics. The sequence of required courses is flexible for the individual student after the prerequisites are met. No freshmen are permitted to take courses in economics.

It is suggested that majors in economics select minors from related disciplines. For those who are able to master higher mathematics it is strongly suggested as an excellent aid in theory.

**PROGRAM FOR ECONOMIC MAJORS****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2802 .....	4	4
Mathematics 3601, 3602 .....	3	3
History 2800, 2801 .....	3	3
English 2425 .....	2	—
Biological Science 1501 .....	4	—
Physical Science 1601 .....	—	4
Military Science 7101, 7102 or .....	1	1
Air Science 7001, 7002, or Electives .....	1	1
Physical Education 2701, 2703 (Women) ...	1	1
Physical Education 2702, 2704 (Men) .....	1	1
	<hr/> 16	<hr/> 16



**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
French 2500, 2501 or .....	3	3
German 2502, 2503 or .....	3	3
Spanish 2504, 2505 .....	3	3
Physical Education 2721, 2722 (Men) .....	1	1
Physical Education 2724, 2725 (Women) ...	1	1
Air Science 7021, 7022 or .....	—	—
Military Science 7121, 7122 or Electives ...	2	2
English 2425 .....	2	—
Humanities 2434, 2435 .....	3	3
Economics 2840, 2841 .....	3	3
Economics 2865, 2866 .....	3	3
Any two electives in the social sciences*	—	—
	15-17	15-17

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Economics 2842, 2860 .....	3	3
Economics 2864, Econ. Elective .....	3	3
Economics 2863, Econ. Elective .....	3	3
Economics Elective, Soc. Science Elective .....	3	3
Economics Elective, Soc. Science Elective .....	3	3
	—	—
	15	15

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Economics 2863 .....	3	
At least 25 hours of electives for men who have taken Military Science.		
At least 27 hours for women and those men taking Air Science.		

\* History, Political Science, Sociology, Psychology, Business, etc. Although mathematics beyond the basic courses, at this point is not mandatory, it is *strongly* suggested. We also strongly recommend a course in Computer Programming.

**PROGRAM FOR AGRICULTURAL BUSINESS MAJOR\*****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Social Science 2800, 2801 .....	3	3
Mathematics 3611, 3613 .....	4	4
Physical Science 1601 .....	4	—
Biological Science 1501 .....	—	4
Air or Military Science or Electives .....	1	1
Education 2100 .....	1	—
	<hr/> 17	<hr/> 16

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Humanities 2434, 2435 .....	3	3
Health Education 2700 .....	2	—
Economics 2840, 2841 .....	3	3
Psychology 2320 .....	—	3
Ag. Econ. 1121 .....	3	—
Animal Husbandry 1301; Dairy Husbandry 1302; Plant Sc. 1400 or Poultry Husbandry 1317 .....	3	3
Ag. Econ. 1177 .....	—	3
Air or Military Science or Electives .....	2	2
	<hr/> 16	<hr/> 17

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Ag. Econ. 1122, 1141 .....	3	3
Accounting 3321, 3322 .....	3	3
English 2425 .....	—	2
Sociology 2831 .....	3	—
Electives (Major Area) .....	4	6
Electives .....	3	3
	<hr/> 16	<hr/> 17

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Ag. Econ. 1142, 1178 .....	3	3
Business Administration 3351, 3352 .....	3	3
Business Administration 3365 .....	—	3
Business Administration 3372 .....	—	3
Electives (Major Area), Ag. Econ. 1161 ....	5	3
Electives (Technical Agriculture) .....	4	3
	<hr/> 15	<hr/> 15

\* Offered in cooperation with the School of Agriculture.

Fifteen (15) hours of major electives—Major electives will be selected from the following courses:

Ag. Econ. 1162 (3)	Ag. Econ. 1171 (3)
Ag. Econ. 1165 (3)	Ag. Econ. 1174 (3)
Ag. Econ. 1166 (3)	Ag. Econ. 1176 (3)
	Ag. Econ. 1179 (3)

### PROGRAM FOR AGRICULTURAL SCIENCE MAJORS\*

#### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2100 .....	1	—
English 2401, 2402 .....	4	4
Social Science 2800, 2801 .....	3	3
Botany 1507, Zoology 1512 .....	4	4
Mathematics 3611, 3613 .....	4	4
Air or Military Science or electives .....	1	1
	<hr/> 17	<hr/> 16

#### Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Ag. Econ. 1121, 1122 .....	3	3
Chemistry 1611, 1612 .....	4	4
Ag. Engineering 1403 .....	3	—
Animal Husbandry 1301 .....	—	3
Plant Sc. 1400 or Poultry Husbandry 1317 ..	3	3
Air or Military Science or electives .....	2	2
	<hr/> 15	<hr/> 15

#### Junior Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Humanities 2434, 2435 .....	3	3
Ag. Econ. 1141 .....	3	—
Economics 2840 .....	3	—
Economics 2841 .....	—	3
Accounting 3321, 3322 .....	3	3
English 2425 .....	—	3
Soc. 2831 .....	3	—
Foreign Lang. ....	3	3
	<hr/> 18	<hr/> 15

\* Offered in cooperation with the School of Agriculture.

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Ag. Econ. 1142, 1177 .....	3	3
Ag. Econ. 1178 .....	—	3
Bus. Admin. 3351, 3352 .....	3	3
Math. 3621 .....	4	—
Ag. Econ. 1161 .....	—	3
Electives, major area .....	6	6
	16	18

Nine (9) hours of major electives—Major electives will be selected from the following courses:

Ag. Econ. 1162 (3)	Ag. Econ. 1174 (3)
Ag. Econ. 1165 (3)	Ag. Econ. 1176 (3)
Ag. Econ. 1166 (3)	Ag. Econ. 1179 (3)
Ag. Econ. 1171 (3)	A. A. 3372 (3)

**COURSES IN ECONOMICS****UNDERGRADUATE COURSES**

**2840. Principles of Economics I.** Credit 3(3-0)  
(Formerly Ec. 310)

An introduction to the meaning and scope of economics, economic terminology, the evolution of the capitalistic economy and some of the principles upon which its operation rests. Emphasis on microeconomics. A prerequisite for all other courses in Economics.

**2841. Principles of Economics II.** Credit 3(3-0)  
(Formerly Ec. 311)

A continuation of 2840. Difficulties encountered and possible solutions to problems of inflation, depressions, labor, money, banking and trade. Problems of economic growth and development. Emphasis on macroeconomics.

**2842. History of Economic Thought.** Credit 3(3-0)  
(Formerly Ec. 315)

A survey of the history of economic thought from the Middle Ages to John M. Keynes. The course aims to show how, and under what conditions the more important laws and theories became a part of the body of modern economics.

**2844. Public Finance.** Credit 3(3-0)  
(Formerly Ec. 321)

An analysis is made of the way federal, state and local government obtain and spend their revenues. Tax theories, incidence and impact are covered. Factors influencing government fiscal policies.

**2860. Intermediate Economic Theory.** Credit 3(3-0)  
(Formerly Ec. 407)

Allocation of resources and distribution of income within various market structures, with emphasis on analytical tools.

- 2862. National Income Analytical (Macroecon.)** Credit 3(3-0)  
(Formerly Ec. 409)

An introduction to the modern theory of the determination of the level of income, employment, and prices; the various theories of money and interest; fiscal and monetary policy.

- 2863. Labor Problems.** Credit 3(3-0)  
(Formerly Ec. 410)

An introductory course dealing with the efforts of working people to improve their relative position in the economy; the influence of unionism and of government participation are emphasized. The role of management.

- 2864. Money and Banking.** Credit 3(3-0)  
(Formerly Ec. 420)

A general survey of the role of banking in the economy; the nature of money and international exchange.

- 2865. Elementary Statistics.** Credit 3(3-0)  
(Formerly Ec. 430)

An introduction to research methods; measures of central tendency; dispersion and sampling techniques.

- 2866. Advanced Statistics.** Credit 3(3-0)  
(Formerly Ec. 431)

Time series analysis; simple correlation for grouped and ungrouped data; advanced study of statistical inference. These two courses in statistics cover the basic Civil Service requirements in statistics. Prerequisite: Economics 2865 (in which at least a "B" average is maintained.)

- 2867. International Economic Relations.** Credit 3(3-0)  
(Formerly Ec. 432)

National specialization and international exchange. The history and significance of international trade among nations of the world.

- 2868. Business Cycles.** Credit 3(3-0)  
(Formerly Ec. 433)

The general instability of capitalism and its causes. Seasonal fluctuations and the secular trend. Business cycle history and theories. The influence of cycles on government fiscal policy.

#### ADVANCED UNDERGRADUATE AND GRADUATE

- 2876. Economic Understanding.** Credit 3(3-0)  
(Formerly Ec. 501)

An analysis of the institutional organization and functions of the American economy. Special references will be made to the state of North Carolina. A prerequisite for all graduate students who had no undergraduate courses in Economics and wish to take the graduate courses in Economics.

- 2877. Comparative Economic Systems.** Credit 3(3-0)  
(Formerly Ec. 502)

A description and analytical study of the various systems that have developed in different countries at different times; motivations, production and distribution patterns.

- 2882. Labor and Industrial Relations.** Credit 3(3-0)  
(Formerly Ec. 601)

Two important sectors of the economy are examined—Labor and Management. Historical, public and governmental influences are studied.

**COURSES IN AGRICULTURAL ECONOMICS****Undergraduate**

1121. **Introduction to Agricultural Economics.** Credit 3(3-0)  
(Formerly Ag. Ec. 222)

An application of the fundamental principles of economics to agricultural production, marketing, land tenure, leasing arrangements, financing and related economic problems.

1122. **Elements of Farm Management.** Credit 3(2-2)  
(Formerly Ag. Ec. 223)

Principles which govern the effective organization and operation of the farm firm.

1141. **Marketing Agricultural Products.** Credit 3(3-0)  
(Formerly Ag. Ec. 331)

Principles and practices of marketing as applied to farm commodities. Form, place, time and possession utility, the ultimate consumer's market, the agricultural industries market, the middleman system, exchange market operation and futures contracts, price determination, reducing marketing costs. Visits will be made to local markets. Prerequisite: Ag. Econ. 1121.

1142. **Agricultural Prices.** Credit 3(2-2)  
(Formerly Ag. Ec. 334)

Information regarding agricultural price changes, index numbers, price determination, seasonal and cyclical price movements, storage problems, and other methods of controlling extreme price fluctuations, government price policy.

1161. **Intermediate Economic Theory.** Credit 3(3-0)  
(Formerly Ag. Ec. 407)

Allocation of resources and distribution of income within various market structures, with emphasis on analytical tools. Prerequisite: Ag. Econ. 1121 or Econ. 2840.

1161. **Resource Economics.** Credit 3(3-0)  
(Formerly Ag. Ec. 445)

Isolates land as a factor of production, historical implications of land policies in the United States, land classification, land utilization, rights in land and the extent of public land ownership. Prerequisite: Ag. Econ. 1121.

1163. **Co-operative Marketing.** Credit 2(2-0)  
(Formerly Ag. Ec. 447)

Early cooperative movements, principles of cooperatives, importance of cooperatives in the United States, problems of organization, management and operation of cooperative endeavors by farmers in buying and selling. Prerequisites: Ag. Econ. 1121, 1141.

1164. **Marketing Dairy Products.** Credit 3(2-2)  
(Formerly Ag. Ec. 449)

Economic problems in procuring milk and cream, in processing and distributing fluid milk, cream and manufacturing dairy products; marketing legislation, market news, market methods, including cooperation, consumer demand and price policy. Prerequisite: Ag. Econ. 1141.



1165. **Economics of Food Distribution.** Credit 3(3-0)  
(Formerly Ag. Econ. 451)

Description of market structures and operations in the processing, wholesale and retail distribution of food. The effect of industrial organization and government regulations on the efficiency of the market and consumers demand for food.

1166. **Agricultural Economics Research.** Credit 3(3-0)  
(Formerly Ag. Ec. 1183)

Review of different types of research methodology used in the field of Agricultural Economics. Prerequisite: Consent of the Department Chairman.

### **Advanced Undergraduate and Graduate**

1170. **Southern Resources in a Changing Economy—A Seminar.** Credit 3  
(Formerly Ag. Ec. 1175)

Trends and the formulation of economic and social problems in the South and particularly in North Carolina; labor and capital mobility, agricultural as compared with the industrial, the problem of underemployment, and important phases of current economic development. Prerequisites: Economics 2840, Sociology 2831 or Ag. Econ. 1121.

1171. **Agri-Business Policy.** Credit 3(3-0)  
(Formerly Ag. Ec. 1176)

The place of Agri-business in the National and International economy; the impact of public policy on the industry. An analysis of policy as it relates to, price support programs, finance, trade and resource development. Prerequisite: Ag. Econ. 1121.

1172. **Commodity Marketing Problems.** Credit 3(3-0)  
(Formerly Ag. Ec. 504)

Economic problems arising out of the demand, supply and distribution of specific agricultural commodities; the price making mechanism, marketing methods, grades, values, price, cost, and governmental policy. Not more than two commodities will be studied in any one quarter. Selection of commodities and emphasis on problem areas will be made on the basis of current need; commodities studied will be cotton, tobacco, fruits and vegetables, and grains. Prerequisite: Consent of the Department Chairman.

1173. **Seminar in Marketing Farm Products.** Credit 3(3-0)  
(Formerly Ag. Ec. 1174)

Discussion, reports, consultation and research efforts which throw light on marketing problems of low income farmers in North Carolina, including National and International importance of locally grown products such as tobacco and cotton. Prerequisite: Consent of the Department Chairman.

1174. **Special Problems in Agricultural Economics.** Credit 3(1-2)  
(Formerly Ag. Ec. 1180)

Designed for students who desire to work out special problems in the field of agricultural economics; problem definition, formulation and investigation. Prerequisite: Consent of the Department Chairman.

1175. **Agri-Business Management.** Credit 3(2-2)  
(Formerly Ag. Ec. 1181)

Methods of research, plans, organization, and the application of management principles. Part of the student's time will be spent in consultation with Agri-business firms. Prerequisite: Consent of the Department Chairman.

1176. Seminar in Agricultural Economics. Credit 2(2-0)  
(Formerly Ag. Ec. 1182)

Discussion reports and an appraisal of current literature on agricultural problems. Prerequisite: Consent of the Department Chairman.

1177. Statistical Methods in Agricultural Economics I. Credit 3(2-2)  
(Formerly Ag. Ec. 1184)

Statistical methods with special applications to agricultural problems. The statistical table, ratios, percentages, bar charts, line charts, and frequency distribution are used as analytical tools. Prerequisites: Ag. Econ. 1121, Econ. 2840, or Sociology 2831.

1178. Statistical Methods in Agricultural Economics II. Credit 3(2-2)  
(Formerly Ag. Ec. 1185)

Statistical methods with special applications to agricultural problems. The time series analysis, sampling theory, analysis of variance, and simple correlation are used as analytical tools. This course is a continuation of Ag. Econ. 1177.

1179. Appraisal and Finance of Agri-Business Firms. Credit 3(3-0)  
(Formerly Ag. Ec. 1186)

Principles of land evaluation, appraisal and taxation. The role of credit in a money economy, classification of credit, principles underlying the economic use of credit. The role of the government in the field of credit.

## DEPARTMENT OF HISTORY AND POLITICAL SCIENCE DEPARTMENT OF HISTORY and POLITICAL SCIENCE

VIRGIL C. STROUD, *Chairman*

In keeping with the general objectives of the University, the offerings in this department are designed to accomplish the objectives listed below with respect to the various major areas.

### DEPARTMENTAL MAJORS

Three majors are offered in the department: History, Political Science and Social Studies.

The History major is designed to provide the necessary information, training and skills for prospective teachers of History, for graduate study and for career objectives in a variety of occupations. A student thus may secure the major in History without the Education requirements requisite for teacher preparation.

The Political Science major is designed to impart to students a background and understanding of the various aspects of governments and their operation, to impart to students a background whereby they may do further study leading to careers in government, and to serve as prelaw preparation for those desiring to choose law as a career, as well as preparation for graduate study other than law.

The Social Studies major is designed to provide the necessary training, information and skills for prospective teachers of Social Studies.

A major in any of the areas of History and Political Science requires a minimum of 30 semester hours.

A minor may be secured in History and Political Science.

### MAJOR IN SOCIAL STUDIES

#### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3601, 3602 .....	3	3
History 2800, 2801 .....	3	3
Biological Science 1501 .....	4	—
Physical Science 1601 .....	—	4
Education 2100 .....	1	—
Physical Education 2701, 2703 (men) .....	1	1
Physical Education 2702, 2704 (women) ....	1	1
**Electives .....	2	2
*English 2403 .....	—	1
	18	18

#### Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Foreign Language 2500, 2501 or Foreign Language 2502, 2503 or Foreign Language 2504, 2505 .....	3	3
Education 2120, 2121 .....	2	2
English 2425 .....	2	—
History 2822, 2823 .....	3	3
Humanities 2434, 2435 .....	3	3
Psychology 2320 .....	3	—
Electives .....	2	5
	18	16

#### Junior Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Economics 2840, 2841 .....	3	3
Education 2154 .....	3	—
History 2853, 2854 .....	3	3
Political Science 2941 .....	3	—
Geography 2846 .....	—	3
Psychology 2341 .....	—	3
Electives .....	6	3
	18	18

\* For those Freshmen who failed the Reading Test.

\*\* The Freshman-Sophomore elective considers the possible choice of Air Science or Military Science.

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Philosophy 2920 .....	3	—
Geography 2847 .....	3	—
Political Science 2942 .....	3	—
Education 2140, 2146, 2161 .....	—	12
Electives .....	6	—
	<hr/> 15	<hr/> 12

**MAJOR IN POLITICAL SCIENCE****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3601, 3602 .....	3	3
History 2800, 2801 .....	3	3
Biological Science 1501 .....	4	—
Physical Science 1601 .....	—	4
Education 2100 .....	1	—
Physical Education 2701, 2703 (men) .....	1	1
Physical Education 2702, 2704 (women) ..	—	1
*English 2403 .....	—	1
**Elective .....	3	3
	<hr/> 19	<hr/> 19

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Foreign Language 2500, 2501 or Foreign Language 2502, 2503 or Foreign Language 2504, 2505 .....	3	3
English 2425 .....	2	—
Health Education 2700 .....	—	2
History 2822, 2823 .....	3	3
Humanities 2434, 2435 .....	3	3
Political Science 2829 .....	3	—
Psychology 2320 .....	—	3
Electives .....	3	3
	<hr/> 17	<hr/> 17

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Political Science 2940, 2941 .....	3	3
Political Science 2942, 2943 .....	3	3
Political Science 2944, 2945 .....	3	3
Economics 2840, 2841 .....	3	3
Philosophy 2920 .....	3	—
Electives .....	3	3
	<hr/> 18	<hr/> 18

\* For those Freshmen who failed the Reading Test.

\*\* The Freshman-Sophomore elective considers the possible choice of Air Science or Military Science.

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Political Science 2964, 2965 .....	3	3
Political Science 2967, 2968 .....	3	3
History 2874 .....	3	—
Economics 2865 .....	3	—
Electives .....	3	6
	<hr/> 15	<hr/> 12

**MAJOR IN HISTORY****(Teaching)****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3601, 3602 .....	3	3
History 2800, 2801 .....	3	3
Biological Science 1501 .....	4	—
Physical Science 1601 .....	—	4
Education 2100 .....	1	—
Physical Education 2701, 2703 (men)		
Physical Education 2702, 2704 (women) ...	1	1
**Elective .....	2	2
*English 2403 .....	1	1
	<hr/> 19	<hr/> 18

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2120, 2121 .....	2	2
Foreign Language 2500, 2501 or		
Foreign Language 2502, 2503 or		
Foreign Language 2504, 2505 .....	3	3
English 2425 .....	2	—
Health Education 2700 .....	—	2
History 2822, 2823 .....	3	3
Humanities 2434, 2435 .....	3	3
Psychology 2320 .....	—	3
**Electives .....	5	2
	<hr/> 18	<hr/> 18

\* For those Freshmen who failed the Reading Test.

\*\* The Freshman-Sophomore elective considers the possible choice of Air Science or Military Science.

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Economics 2840 .....	3	—
Education 2154 .....	—	3
History 2850, 2851 .....	3	3
History 2853, 2854 .....	3	3
Psychology 2341 .....	3	—
History 2857 .....	—	3
Philosophy 2920 .....	—	3
Electives .....	3	—
	—	—
	15	15

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
History 2874 .....	3	—
Political Science 2941 .....	3	—
History 2881 .....	3	—
History 2882 .....	3	—
Education 2140, 2146, 2161 .....	—	12
Electives .....	3	—
	—	—
	15	12

**MAJOR IN HISTORY****(Non-Teaching)****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3601, 3602 .....	3	3
History 2800, 2801 .....	3	3
Biological Science 1501 .....	4	—
Physical Science 1601 .....	—	4
Education 2100 .....	1	—
Physical Education 2701, 2703 (men) .....	1	1
Physical Education 2702, 2704 (women) ...	—	1
*English 2403 .....	—	1
**Elective .....	3	1
	—	—
	19	17

\* For those Freshmen who failed the Reading Test.

\*\* The Freshman-Sophomore elective considers the possible choice of Air Science or Military Science.



**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2425 .....	2	—
Foreign Language 2500, 2501 or Foreign Language 2502, 2503 or	3	3
Foreign Language 2504, 2505 .....	3	3
History 2822, 2823 .....	3	3
Psychology 2320 .....	3	—
Humanities 2434, 2435 .....	3	3
Health Education 2700 .....	2	—
History 2850 .....	—	3
**Electives .....	3	3
	19	15

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
History 2851, 2852 .....	3	3
History 2853, 2854 .....	3	3
History 2874 .....	—	3
Economics 2840, 2841 .....	3	3
Political Science 2941, 2942 .....	3	3
Philosophy 2920 .....	3	—
Electives .....	3	3
	18	18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
History 2881, 2882 .....	3	3
Geography 2846 .....	3	—
Political Science 2943 .....	—	3
Electives .....	6	6
	12	12

**COURSES IN GEOGRAPHY****Undergraduate**

200 2846. Principles of Geography. Credit 3(3-0)  
(Formerly Geog. 310)

A survey of the principles of geography.

319 2847. Regional Geography of Anglo-America. Credit 3(3-0)  
(Formerly Geog. 320)

A study of the geographic regions of the United States and Canada.

2848. **Resources and Industries of the United States.** Credit 3(3-0)  
(Formerly Geog. 330)

A study of the physical resources of the United States and its possessions.

- 320 2871. **Economic Geography of Latin America.** Credit 3(3-0)  
(Formerly Geog. 410)

The agricultural and industrial resources of Latin America, including the utilization of Negro labor, and the assimilation of African culture into Latin-American life.

- 321 2872. **Political Geography.** Credit 3(3-0)  
(Formerly Geog. 420)

Theories of political geography; territorial changes and their political significance; problems in political unification, centralization and federation; Prerequisite: Pol. Sc. 2829 or 2941.

### Graduate Courses

These courses are open only to graduate students. For descriptions of them, see the Bulletin of the Graduate School.

- 620 2885. **World Geography.** (Formerly Geog. 501) Credit 3(3-0)

2886. **Geography of North America.** (Formerly Geog. 603) Credit 3(3-0)

### COURSES IN HISTORY

#### Undergraduate

- 100 2800. **History of Western Civilization—Part I.** Credit 3(3-0)  
(Formerly Soc. Sc. 101)

A freshman survey course in Western Civilization. Part I treats the period from the Ancient World through the 17th Century.

- 101 2801. **History of Western Civilization—Part II.** Credit 3(3-0)  
(Formerly Soc. Sc. 102)

A continuation of Social Science 2800 treating the period from the Age of Enlightenment to the present.

- 204 2822. **United States From 1492 to 1865.** Credit 3(3-0)  
(Formerly History 201) (Formerly History 221, 309)

A survey of the social, political and economic forces resulting in the development of the American Nation.

- 205 2823. **United States Since 1865.** Credit 3(3-0)  
(Formerly History 202) (Formerly 222, 310)

A survey and synthesis of economic, social and political forces affecting the American Nation during this period, emphasizing the rise and effects of large scale industry and the emergence of the nation as a great power.

- 209 2824. **Africa South of the Sahara.** Credit 3(3-0)  
(Formerly History 219)

This course is designed to give background information and basic knowledge on Africa and its people. After a survey of the policy of colonialism and the partitioning of Africa South of the Sahara, the focus is on the emerging nations of the twentieth century.

2825. **History of the Negro.** Credit 3(3-0)  
(Formerly History 220)

A study of the Negro in America including the African origins, enslavement, the free Negro before 1860, abolition, achievements since 1865 and the forces in Negro progress.

2826. **History of North Carolina.** Credit 3(3-0)  
(Formerly History 238)

208 A general survey of North Carolina from colonial times to the present.

- 300 2850. **Ancient History.** Credit 3(3-0)  
(Formerly History 301) (Formerly History 201)

A brief survey of Egyptian, Babylonian, and Hebrew Civilizations. Emphasis will be placed on the cultural, political, and economic development of Greece and Rome.

- 301 2851. **Medieval History.** Credit 3(3-0)  
(Formerly History 302) (Formerly History 202)

Emphasis is placed on the rise and decline of the universal church, feudalism, the rise of towns, and the development of centralized governments.

- 302 2852. **The Renaissance and the Reformation.** Credit 3(3-0)  
(Formerly History 303)

A study of the background, causes and progress of the intellectual and cultural movements in Europe in the fourteenth, fifteenth and sixteenth centuries. Emphasis will also be placed on the influence of the renaissance on the events leading to the world conflicts of the sixteenth century.

- 303 2853. **Europe 1648-1815.** Credit 3(3-0)  
(Formerly History 304) (Formerly 203)

This course deals with such major themes as the Age of Louis XIV, Eighteenth Century Enlightenment, The Old Regime, the French Revolution and Napoleon.

- 304 2854. **Europe Since 1815.** Credit 3(3-0)  
(Formerly History 305) (Formerly 204)

A history of Europe since the Congress of Vienna with emphasis on the industrial revolution, nationalism, the rise of democracy, Socialism and events leading to the world conflicts of the twentieth century.

- 405 2855. **History of England.** Credit 3(3-0)  
(Formerly 332)

A study of English institutions and concepts that influenced The Western World, and particularly America. Concentration on The Tudor and Stuart periods in the survey of institutions, and British imperialism as the basis for present world problems.

- 407 2857. **Diplomatic History.** Credit 3(3-0)  
(Formerly History 345)

A study of the relations of the United States with other nations with special reference to the development and use of the economic, political, social, military, and naval power necessary to give support to policy.

- 410 2874. **American Constitutional History.** Credit 3(3-0)  
(Formerly History 410)

A study of the constitutional development of the United States from the adoption of the Constitution to the present time.

2960. History of Latin America. Credit 3(3-0)  
(Formerly History 420)

326 A study of the rise and development of the Latin-American nations. Prerequisite: 15 hours of history or consent of instructor.

2961. History of Eastern Europe. Credit 3(3-0)  
(Formerly History 422)

A general course in the history of Eastern Europe and the Balkins.

- 330 2962. History of the Far East. Credit 3(3-0)  
(Formerly History 424)

331 A survey of the economic and political development of the far eastern countries with emphasis on the twentieth century. Prerequisite: 15 hours of history.

2963. Honors Seminar. Credit 2(2-0)  
(Formerly History 430)

331 This course is designed to present the bibliography and literature in selected fields of history. It consists of readings, bibliography, and discussion of historical literature and interpretation. Limited to seniors in any area in the department with at least a 2.50 average.

#### Courses for Advanced Undergraduates and Graduates

2878. The British Colonies and the American Revolution. Credit 3(3-0)  
(Formerly History 501)

The evolution of colonial institutions, growth of the American colonies, the American Revolution and its aftermath.

2879. Economic History of the United States, 1787-1865. Credit 3(3-0)  
(Formerly History 503)

A study of pre-industrial America with special emphasis on agriculture, commerce, transportation, banking and industry.

2880. Economic History of the United States Since 1865. Credit 3(3-0)  
(Formerly History 504)

A treatment of the American economy in the industrial capitalism finance capitalism, business organization and the relationship between government and business.

2881. Civil War and Reconstruction—1860-1877. Credit 3(3-0)  
(Formerly History 607)

This course is preceded by a summary of the Civil War. It then treats the historiography of the Reconstruction period, the reconstruction of the South and restoration of the Union.

2882. Contemporary History of the United States. Credit 3(3-0)  
(Formerly History 612, 2875)

An intensive study and analysis of important problems in American History since 1928.

2883. The Soviet Union Since 1917. Credit 3(3-0)  
(Formerly History 610, 2892)

A theoretical discussion of the ideological background of the Soviet Union with emphasis on the doctrines of Marx, Engels and Lenin. This is followed by events leading up to the revolution of 1917 and the establishment of Communist autocracy, the New Economic policy, the First Five Year Plan, Stalin's doctrine, and Soviet Communism since the death of Stalin.

**2884. Backgrounds in Africa.**

Credit 3(3-0)

The course is designed: 1) To provide general background information about major historical events on the continent of Africa from its earliest recorded history to the 20th century. (2) To survey and study in detail the political, socio-economic, educational, and technological progress taking place in the new Africa.

**Courses For Graduates Only**

For descriptions see Bulletin of the Graduate School.

**2888. The French Revolution and Napoleon.**

Credit 3(3-0)

(Formerly History 602)

**2889. Recent United States Diplomatic History.**

Credit 3(3-0)

**2890. Social and Political History of England from 1714 to 1832.**

Credit 3(3-0)

(Formerly History 606)

**2891. History of Nineteenth Century Europe.**

Credit 3(3-0)

(Formerly History 505)

**2893. United States in the 20th Century.**

Credit 3(3-0)

**2894. Independent Study in History.**

Credit 3(3-0)

(Formerly History 613)

**2895. Europe Since 1914.**

Credit 3(3-0)

(Formerly History 506)

**2896. Constitutional Development Since 1865.**

Credit 3(3-0)

**COURSES IN POLITICAL SCIENCE****Undergraduate****2829. Introduction to Political Science.**

Credit 3(3-0)

(Formerly Pol. Sc. 211)

This course treats the terminology and concepts of political science including such themes as politics and functions of governments, political behavior, constitutional systems, local government and federalism, individual rights of man, political representation, and governmental agencies and processes. A prerequisite to all other political science courses for political science majors.

**2940. Political Theory.**

Credit 3(3-0)

(Formerly Pol. Sc. 300)

An in-depth treatment of the growth and development of this area of Political Science and its relevance to the field. The approach considers ancient and medieval thought as a unit and modern political thought as a separate unit.

**2941. Federal Government.**

Credit 3(3-0)

(Formerly Pol. Sc. 310)

A general introductory course in the government of the United States designed to acquaint the student with the basic facts and principles of the organization and operation of Federal institutions, and to give a foundation for more advanced work in Political Science. Prerequisites: Pol. Sc. 2829, His. 2823.



- 441 2942. **State Government.** (Formerly Pol. Sc. 320) Credit 3(3-0)  
A study of the structure and functions of state government in the United States and its relation to federal and local governments. Special consideration is given to contemporary problems. Prerequisite: Pol. Sc. 2829.
- 442 2943. **Municipal Government.** Credit 3(3-0)  
(Formerly Pol. Sc. 322)  
An intensive study of the structure and problems of all areas of local government in the United States, with emphasis on contemporary problems of urban growth. Prerequisite: Pol. Sc. 2829 or Pol. Sc. 2942.
- 443 2944. **Public Administration.** Credit 3(3-0)  
(Formerly Pol. Sc. 330)  
Emphasis is devoted to basic principles of organization, location of authority, fiscal management, personnel management, forms of administrative action in the public service, technological and managerial advancements. Prerequisite: Pol. Sc. 2829, 2941.
- 444 2945. **International Relations.** Credit 3(3-0)  
(Formerly Pol. Sc. 340)  
A comprehensive treatment of the policies and politics of nations: imperialism, colonialism, balance of power, international morality, treaties, sovereignty, diplomacy, tariff, war and other arrangements. Prerequisite: Pol. Sc. 2941.
2964. **American Foreign Policy.** Credit 3(3-0)  
(Formerly Pol. Sc. 400)  
An analysis of principles and problems of American foreign policy from 1789 to the present. Prerequisite: Pol. Sc. 2941.
- 347 2965. **Party Politics and Pressure Groups.** Credit 3(3-0)  
(Formerly Pol. Sc. 410)  
This course deals with modern political parties in the United States as instruments of popular government. Special emphasis is placed upon party structure, functions and operation as it relates to the Negro. Prerequisites: Pol. Sc. 2829, 2941.
- 543 2967. **International Law.** Credit 3(3-0)  
(Formerly Pol. Sc. 434)  
A study of the major principles and practices in the development of the Law of Nations, utilizing significant cases for purposes of clarification. Prerequisite: Pol. Sc. 2829, 2945.
- 544 2968. **International Organization.** Credit 3(3-0)  
(Formerly Pol. Sc. 440)  
This course analyzes the role of international organization in world politics. Particular emphasis is given to the various approaches of international organizations in fostering peace and economic and social cooperation. Some attention will be given to the United Nations system as well as such defense, political, and economic arrangements as NATO, OAS, SEATO and the European Communities. Prerequisite: Pol. Sc. 2829, 2965, 2967.

#### Courses For Advanced Undergraduates and Graduates

- 640 2976. **Federal Government.** Credit 3(3-0)  
(Formerly Pol. Sc. 501)  
After a brief review of the structure and functions of the federal government, this course concerns itself with special areas of federal operation: problems of national defense, the government as a promoter, the government as regulator, etc. Students will engage in in-depth study in one of the specific areas under consideration.



**2977. State and Local Government.**

Credit 3(3-0)

(Formerly Pol. Sc. 502)

641 An in-depth study of special problems connected with operation of state and local governments.

**For Graduates Only**

For descriptions see Bulletin of the Graduate School.

740 2898. Government Finance. (Formerly Pol. Sc. 603) Credit 3 3-0

741 2899. Comparative Government. (Formerly Pol. Sc. 508) Credit 3(3-0)

742 2897. Research and Current Problems. Credit 3(3-0)  
(Formerly Pol. Sc. 506)

**DEPARTMENT OF SOCIOLOGY AND SOCIAL SERVICE**WILL B. SCOTT, *Chairman*

In cooperation with other departments, divisions, and schools in the University, and with selected social agencies, this department offers students:

- A. Academic preparation for graduate study in sociology and/or social service.
- B. Experiences for more effective entry into professions and fields for which graduate training is not presently required.
- C. Course content pertinent to understanding the structure and functions of society.

**SUGGESTED MAJOR IN SOCIOLOGY****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3601, 3602 or 3611, 3624 or 3611, 3643 .....	3	3
Biological Science 1501, Physical Science 1601, or Zoology 1512, 1533, 1556, 1565 .....	4	4
History 2800, 2801 .....	3	3
Orientation 2100 .....	1	—
Physical Education 2701, 2703 or 2702, 2704 .....	1	1
Air or Military Science or Electives .....	1	1
	<hr/> 17	<hr/> 16

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2425 .....	2	—
English Electives .....	—	5
Humanities 2434, 2435 .....	3	3
Foreign Language 2500, 2501, or 2502, 2503, or 2504, 2505 .....	3	3
Economics 2840, 2865 .....	3	3
Sociology 2831 .....	3	—
Health Education 2700 .....	—	2
Air or Military Science or Elective .....	2	2
	<hr/> 16	<hr/> 18

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Psychology 2320 .....	3	—
Political Science 2940, 2941, or History 2822, 2823 .....	3	3
Cognate Area .....	3	6
Sociology 2832, 2951 .....	3	3
Electives (Sociology) .....	3	3
	<hr/> 15	<hr/> 15

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Sociology 2952 .....	3	—
Sociology 2953 .....	3	—
Sociology Electives .....	9	—
Electives .....	—	15
	<hr/> 15	<hr/> 15

**SUGGESTED MAJOR IN SOCIAL SERVICE****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3601, 3602, or 3611, 3624, or 3611, 3643 .....	3	3
Biological Science 1501 Physical Science 1601, or Zoology 1512, 1533, 1556, 1565 .....	4	4
History 2800, 2801 .....	3	3
Orientation 2100 .....	3	—
Physical Education 2701, 2703, or 2702, 2704 .....	1	1
Air or Military Science or Electives .....	1	1
	<hr/> 17	<hr/> 16

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Humanities .....	3	3
Foreign Language 2500, 2501, or 2502, 2503, or 2504, 2505 .....	3	3
Economics 2840, 2865 .....	3	3
Sociology 2831 .....	3	3
Air or Military Science or Electives .....	2	2
History 2822, 2823 .....	3	3
	<hr/> 17	<hr/> 17

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Psychology 2320 .....	3	—
Sociology 2832, 2951 .....	3	3
History 2855 .....	3	—
Typing .....	—	2
Social Service 2833, 2971 .....	3	3
Social Service 2843, 2947 .....	3	2
Health Education .....	—	2
English 2425, English Electives .....	2	3
	<hr/> 17	<hr/> 15

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Sociology 2952 .....	3	—
Sociology 2953 .....	3	—
Social Service 2958, 2959 .....	2 or 3	—
Free Electives .....	6	9
Social Service Electives .....	1 = 2	—
English Electives .....	—	2
	<hr/> 15 = 17	<hr/> 11

**COURSES IN SOCIOLOGY****2920. Introduction to Anthropology.**

An analysis and comparison of primitive cultures; further comparison with modern cultures.

**2831. Principles of Sociology.\***

Credit 3

Basic concepts and principles in sociology as they are used to examine patterned and recurrent forms of social behavior.

**2832. Social Problems.**

Credit 3

Major social problems in American society and their relationship to social structure. Prerequisite: Soc. 2831; concurrent—Statistics\*

**2837. Sophomore Honors Seminar in Social Institutions.**

Credit 3

An examination of social institutions as major components of culture. Prerequisite—"B" average; restricted to sophomores. (May be used in place of Soc. 2832)

\* Departmental majors only must enroll concurrently in Statistics.

- 2835. Sociological Statistics I.** Credit 3  
An introduction to elementary statistical reasoning. Prerequisite or concurrent: Soc. 2831 or 2832.
- 2856. Sociological Statistics II.** Credit 3  
Prerequisite: 3 hours of statistics.
- 2948. Courtship and Marriage.** Credit 2  
American premarital and marital behavior patterns; emphasis on heterosexual relationships and preparation for marriage.
- 2969. The Sociology of Work and Occupation.** Credit 3  
An analysis of work and occupational roles within bureaucratic societies. Forms of management—employee relations are studied.
- 2858. Criminology.** Credit 3  
Genesis and origin of crime; comparative analysis of theories of criminal behavior and the prevention of crime. Prerequisite—Soc. 2832
- 2950. The Family.** Credit 3  
The family as a social institution, and family types in cross cultural perspective. Prerequisite—Soc. 2832
- 2955. Independent Study I.** Credit 3  
Independent research on a specific topic or a delineated area in Sociology. Prerequisite: Statistics, permission of instructor (May be used in place of Soc. 2953.)
- 2973. Independent Study II.** Credit 3  
Prerequisites: Statistics, Soc. 2955 or Soc. 2953.
- 2972. Social Stratification.** Credit 3  
A study of social inequalities and differentiation as related to social structures and social systems. Prerequisites: Soc. 2831, Statistics.
- 2975. Population.** Credit 3  
Theories and policies related to population composition, births, deaths, health and morbidity, growth, and changes with emphasis on the United States. Prerequisite: Statistics.
- 2838. The Community.** Credit 3  
Patterns of community and neighborhood organization and structure in rural, urban, and suburban America. Prerequisites: Statistics, Soc. 2832.
- 2951. Origins of Social Thought.** Credit 3  
The nature of social thought from the Greeks to the 19th century. Prerequisites: Soc. 2832, Statistics.
- 2952. Contemporary Sociological Thought.** Credit 3  
Continuance of social thought and theory in its development from Comte to the present. Prerequisite: Soc. 2951.
- 2834. Seminar in Urban Studies.** Credit 3  
An analysis of the nature and problems of cities, urban society and urban development.
- 2953. Research Methods in Sociology.** Credit 3  
Techniques used in sociological research. Prerequisite, or concurrent: Soc. 2952.

**2978. Juvenile Delinquency.\*\***

Credit 3

A study of the extent, distribution, current prevention, and practice treatments of juvenile delinquency in modern western society. Prerequisites: Statistics, Soc. 2858 or graduate standing.

**2974. Reading for Honors in Sociology.**

Credit 3

Intensive and extensive library research on topics in sociology. Prerequisites: "B" average; 6 hours in sociology.

**2949. Minority Groups.**

Credit 3

An analysis of majority—minority group interactions in America with emphasis on American Negroes. Prerequisite: Sophomore standing.

**2980. Honors Seminar in Deviant Behavior.**

Credit 3

Theories about specific forms of deviance are examined. Prerequisites: Soc. 2951, "B" average, junior standing.

**2956. Foreign Study in Sociology.**

Credit 5

Research conducted abroad. Research topic must be selected during the semester preceding the travel abroad. Research findings will be presented no later than the end of the semester following the travel. Prerequisites: Soc. 2953, permission of Chairman.

**GRADUATE ONLY****2987. Concepts in Sociology.**

Credit 3

Selected concepts and principles in sociology; emphasis on primary source materials. Graduates only; others by permission of instructor.

**2985. Negroes In America.**

Credit 3

American Negroes and their relative positions in selected social institutions. Prerequisite: Graduates only.

**COURSES IN SOCIAL SERVICE****2833. Social Welfare I.**

Credit 3

Emergence and development of welfare services in America. Social Welfare as a social institution. Prerequisite: Junior standing.

**2843. Social Functioning and Human Behavior.**

Credit 3

Selected aspects of social responses to growth, health, disease, and disability. (Majors and minors only.) Prerequisite or concurrent: 2833.

**2849. Honors Seminar in Social Service.**

Credit 2

Selected topics in social welfare are extensively studied and discussed. (Majors and minors only.) Prerequisites: statistics, "B" average, sophomore standing.

**2971. Community Organization.**

Credit 3

An analysis of social needs, social resources, and their relationships within communities. Community organization as a method of effective identification of needs and utilization of resources. Prerequisite: Junior standing.

**2947. Principles of Social Work.**

Credit 2

Basic methods in the provision of social services. Prerequisite or concurrent: Soc. 2843. (Majors only; others by consent.)

\*\* Graduate standing.

**2958. Field Experience I.**

Supervised learning experiences in selected social agencies and settings.  
Prerequisite: Consent of Instructor.

**2959. Field Experience II.\*\***

Credit 3

Prerequisite: Consent of Instructor.

**2966. Field Experience III.\***

Credit 5

Prerequisite: Consent of Instructor.

**2970. Independent Study.**

Credit 2

Independent Research in a delineated area of social welfare. Prerequisite: Statistics.

**2954. Reading for Honors in Social Welfare.**

Credit 2

Extensive library research in selected areas of social welfare. Prerequisite: Sophomore standing, "B" average.

**2957. Foreign Study in Social Welfare.**

Credit 5

Research in Social Welfare conducted outside continental U.S. Research topic must be selected and approved during the semester preceding the travel abroad, and the research findings must be presented by the end of the semester following the travel abroad. Prerequisite: Consent of Chairman.

**COURSES IN ANTHROPOLOGY****2920. Introduction to Anthropology.**

Credit 3

An analysis and comparison of primitive cultures; further comparisons with modern cultures.

**2981. Cultural Anthropology.**

Credit 3

Continuation of Anthropology 2920. Emphasis on Culture.

**2982. Introduction to Folklore.**

Credit 3

Basic Introduction to the study and appreciation of folklore.

\* NOTE: Field Experiences require 3 to 4 clock hours for every credit hour, i.e., students enrolling for 5 credit hours will normally spend 15 to 20 hours within an assigned agency.



SCHOOL OF EDUCATION





# SCHOOL OF EDUCATION

S. JOSEPH SHAW, *Acting Dean*

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The School of Education provides opportunities for students to prepare for teaching careers in the secondary schools of the state and for other professional careers. The programs of study are planned to allow the students to attain competence in both specialized and general areas of Education.

The School of Education includes the following departments: Education, Psychology and Guidance, and Health, Physical Education and Recreation. In addition to these departments the School includes the Division of Industrial Education and Technology, the Department of Adult Education and Community Services and the Reading Center.

Upon the satisfactory completion of one of the undergraduate programs offered by the School of Education in cooperation with other departments of the University, the student is eligible to receive the degree of Bachelor of Science with a major in one of the following areas: Agricultural Education, Art Education, Biology Education, Business Education, Chemistry Education, English Education, French, History, Home Economics Education, Industrial Arts, Industrial Education, Mathematics Education, Music Education, Physical Education, Physics Education, Social Studies, and Psychology.

## DEPARTMENT OF EDUCATION

DOROTHY M. PRINCE, *Acting Chairman*

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The Department of Education, in collaboration with the various academic departments, provides a program for the education of secondary school teachers. Course offerings in library science are also provided for the prospective teacher-librarian.

### PROFESSIONAL EDUCATION

The professional education phase of the program in teacher education is designed to discover the prospective teacher of promise and to develop the competencies necessary for beginning teachers at the secondary level.

Approximately eighteen percent of the undergraduate curriculum is devoted to professional education. This phase is designed to achieve the following objectives:

1. To develop understanding of human growth and development with special emphasis on the adolescence years.
2. To develop understanding of the nature of learning, how it takes place, and some factors which may enhance or inhibit its progress.

3. To develop understanding of materials and methods as they relate to learning in the student's area of specialization.
4. To develop skills necessary for wise use of materials, methods and resources applicable to instruction in the student's area of specialization.
5. To develop understanding of the purposes, organization, and administration of the school system, with special emphasis on the role of the secondary teacher in the total program.
6. To develop understanding of the social, historical and philosophical foundations undergirding the American pattern of education.
7. To develop a knowledge of the total instructional process through direct observation and participation in teaching under strict supervision.
8. To develop the skills necessary for the manipulation of materials and methods and the guidance of the learning process through direct observation and practice of teaching under strict and constructive supervision.

### Suggested Professional Education Sequence

#### Sophomore Year

<i>Fall</i>		<i>Spring</i>	
Ed. 2120 .....	2	Ed. 2121 .....	2
Psy. 2320 .....	3		<hr/>
	<hr/>		2
	5		

#### Junior Year

<i>Fall</i>		<i>Spring</i>	
Ed. 2154 .....	3	Psy. 2341 .....	3
	<hr/>		<hr/>
	3		3

#### Senior Year

<i>Fall</i>		<i>Spring</i>	
*Ed. 2140 .....	3	*Ed. 2140 .....	3
*Ed. 2143, 2152 .....	3	*Ed. 2143, 2152 .....	3
*Ed. 2161 .....	6	*Ed. 2161 .....	6
	<hr/>		<hr/>
	12		12

### Suggested Sequence for Library Science

The professional education program for the prospective teacher-librarian will be the program followed for the major teaching area; however, student teaching experience should include some laboratory experience in a school library.

\* Professional Block—Students except those taking library science courses are restricted to 12 semester hours during the student teaching semester.

**Sophomore Year**

<i>Fall</i>		<i>Spring</i>	
Ed. 2110 .....	3	Ed. 2111 .....	3
	<hr/> 3		<hr/> 3

**Junior Year**

Ed. 2112 .....	3	Ed. 2113 .....	3
	<hr/> 3		<hr/> 3

**Senior Year**

Ed. 2075 or 2076 .....	3	Ed. 2115 .....	3
	<hr/> 3		<hr/> 3

**Certification**

When the student completes the Teacher Education sequence, he must apply for state certification by (1) requesting a certification application from the Registrar's office and (2) requesting a copy of his official transcript to be attached to the application.

The student must take the National Teacher Examination, both the Common and Teaching Area Examinations, and he must have these scores on file in the Teacher Education Office. The student must have the minimum scores required by the State of North Carolina before he will be recommended by the University for a North Carolina teaching certificate.

**COURSES IN EDUCATION**

**2100. Orientation.** Credit 1(1-0)  
(Formerly Education 101)

A familiarization with methods of improving study, taking notes and using the library. Offered each semester of the Freshman year and during the Summer Session.

**Education 2110. Organization and Administration of School Libraries.** Credit 3(3-0)

Historical overview of the library profession and the area of services of different types of libraries; the administrative organizational procedures including acquisition policies and library planning.

**Education 2111. Cataloging and Classification.** Credit 3(3-0)

Basic course in techniques of book description, their organization for services in libraries through decimal classification and their subject representation in the public catalog.

**Education 2112. School Library Reference Materials.** Credit 3(3-0)

The selection, evaluation and use of basic reference materials with emphasis on the selection of materials, study of contents, and methods of location.

**Education 2113. Non-Book Materials.** Credit 3(3-0)

A study of principles and techniques for the selection, acquisition and use of non-book materials. Prerequisites: Education 2110 and 2111.

**Education 2114. Reading Interest.**

Credit 3(3-0)

Materials correlative to recreational and curricula reading. Special attention is given to the principles of selection based on reading interests and needs.

**Education 2115. Principles and Techniques of Librarianship.** Credit 3(3-0)

A study of the relationship of libraries to other social and educational agencies, standards for Library Service, and librarianship as a profession. Practical experience is required. Prerequisites: Education 2110 and 2111.

**2120. Introduction to Education.**

Credit 2(2-0)

(Formerly Education 201)

An overview of the historical background of the systems of education in the United States, their aims, organization and procedures, and of the principles and practices on all levels of the American educational system; emphasis on the requirements of North Carolina.

**2121. Philosophical and Sociological Foundations of Education.**

(Formerly Education 202)

Credit 2(2-0)

A view of the educative process and its philosophical foundations; emphasis on the philosophical implications of education as they relate to the pupil, curriculum, teacher, and the institution. Prerequisite: Education 2120.

**2122. Utilization of Audiovisual Media.**

Credit 2(1-2)

(Formerly Education 302)

A consideration of the improvement of instruction and communications through the use of audio-visual media; includes the study of the general practices, and utilization, selection, production, and evaluation of audio-visual media for teaching-learning or other informal education situations.

**2140.\*\* Principles and Curricula of Secondary Schools.**

Credit 3(3-0)

(Formerly Education 301)

The history, nature, and function of the secondary school and its relationship to the elementary school and adult life. Prerequisite: 12 semester hours in education and psychology.

**2141. Public School Music Methods.**

Credit 2(2-0)

(Formerly Education 302)

A comprehensive study of materials and methods in the teaching of public school music.

**2142. Vocal Methods and Materials.**

Credit 3(3-0)

(Formerly Education 303)

The teaching of vocal music in the public schools; vocal literature for vocal combinations in the public schools.

**2143. The Teaching of Physical Education.**

Credit 2(1-2)

(Formerly Education 304)

A study of materials, methods and practice in planning, organizing and conducting physical education class activities. Prerequisites: 2749 and an adequate number of other physical education courses.

**2144. Methods of Teaching English.**

Credit 3(3-0)

(Formerly Education 305)

A study of materials and methods of teaching English in the high school. Required of those planning to teach English. Prerequisites: English 2441, 2455, 24 additional hours of English courses above English 2401 and 15 semester hours in Education and Psychology.

\*\* Restricted to students in good standing in the Teacher Education Program and to students with overall grade point average of 2.00 or better.



- 2145. Band Methods.** Credit 3(3-0)  
(Formerly Education 306)

A study of school band organization and administration. (Fall)

- 2146. Methods of Teaching Social Sciences.** Credit 3(3-0)  
(Formerly Education 307)

A study of techniques of social science instruction on the high school level. Required of those planning to teach the subject. Prerequisites: 27 hours of Social Studies and 15 semester hours of Education and Psychology.

- 2147. Methods of Teaching Mathematics.** Credit 3(3-0)  
(Formerly Education 308)

An evaluation of subject matter, materials, methods and techniques and objectives in the teaching of mathematics in the junior and senior high school. Required of those planning to teach the subject. Prerequisites: 24 hours of mathematics and 15 hours of Education and Psychology.

- 2148. Methods of Teaching Foreign Languages.** Credit 3(3-0)  
(Formerly Education 309)

A study of the problems and difficulties experienced in teaching foreign languages. Special attention given to the matter of classroom aids, equipment, etc. Required of those students planning to teach the subject. Prerequisites: 27 hours of French and 15 semester hours of Education and Psychology.

- 2149. Methods of Teaching Art.** Credit 3(3-0)  
(Formerly Education 310)

A study of the aims, objectives, methods and techniques of art teaching in the modern schools. Special attention given to planning courses of material and correlation. Required of those wishing to qualify as art teachers. Prerequisites: 30 hours of Art and 15 hours of Education and Psychology.

- 2150. Methods of Teaching Science.** Credit 3(3-0)  
(Formerly Education 311)

A study of methods, materials and techniques of teaching such subjects as Biology, Chemistry, Physics, and General Science in the high school. Required of all those planning to teach in this field. Prerequisites: 27 hours of Science and 15 semester hours of Education and Psychology.

- 2151. Methods of Teaching Home Economics.** Credit 3(3-0)  
(Formerly Education 312)

A study of the objectives, methods, and techniques necessary for teaching vocational homemaking on the secondary level.

- 2153. Driver Education and Traffic Safety.** Credit 3(2-2)  
(Formerly Education 314) Also Driver Ed. 4123

A consideration of the objectives and scope of driver education, traffic laws, preventive maintenance; skill developing exercises, and aids to teaching driver education. Designed to train students who may wish to teach driver education in the public schools.

- 2154.\*\* Psychological Foundations of Education—Growth and Development.** Credit 3(2-2)  
(Formerly Psychology 203 and Psychology 301—Restricted to Teacher Education Students)

Psychological principles governing the interests and needs of preadolescence and adolescence; emphasis is placed on general principles of growth and development; physical, motor, intellectual, social, emotional and moral

\*\* Restricted to students in good standing in the Teacher Education Program and to students with overall grade point average of 2.00 or better.

aspects. Observing, recording and interpreting human behavior including functional conceptions of learning will be provided in laboratory settings. Prerequisites: Psychology 2320, Education 2120, 2121.

**2160. Methods of Research and Evaluation in Health and Physical Education** Credit 2(1-2)  
(Formerly 401)

The use of various research methods as applied to health education and physical education and the study of methods of evaluating biological, social and physiological outcomes for health education and physical education. Elementary statistical procedures are utilized. Prerequisite: Psychology 2341.

**2161. Observation and Student Teaching.** Credit 6(2-8)  
(Formerly Education 402)

The application and practice of methods, techniques, and materials of instruction in a real classroom situation under supervision, includes purposeful observation; organization of teaching materials; participation in other activities which will aid in developing a teacher (guidance activities, child accounting, co-curricular activities, parent-teacher associations, teachers' meetings,) and ninety or more clock hours of actual teaching. Prerequisites: Overall GPA of 2.00 in both the professional sequence and the academic sequences major and minor areas of specialization; Ed. 2140, Principles and Curricula of Secondary Schools and Ed. 2141-2152, Methods of Teaching . . . completed or taken concurrently.

Before enrolling in this course, a student must repeat any required major field course or Education course, except Psych. 2320 and Ed. 2120, in which he receives a grade of D. The repetition will not be considered in the hours required for graduation but the hours and the grade of the repetition will be included in the determination of the overall grade point average.

**2162. Driver Education and Teacher Training.** Credit 3(2-2)  
(Formerly Education 314) Also Driver Ed. 4143

The organization and administration of the high school driver education program. Special emphasis given to methods and resources; scheduling and evaluation.

**2163. The Teaching of Health Education.** Credit 2(2-1)  
(Formerly Physical Education 444)

Methods, materials and procedures for the teaching of health in the elementary and secondary schools. Prerequisites: Health Education 2720 and 2745.

### Advanced Undergraduate and Graduate

**Education 2075. Book Selection and Related Materials for Children.** Credit 3(3-0)

Children's literature with study of aids and criteria for selection of books and other materials for the Elementary School Pupils and investigation of children's reading interests.

**Education 2076. Book Selection and Related Materials for Young People.** Credit 3(3-0)

To prepare teachers and librarians for an effective sharing of responsibility for development and use of school libraries. Reading interests of young people and source of information regarding books.

**Education 2077. Building Library Collection.** Credit 3(3-0)

Criteria for evaluating and selecting library materials, devising and maintaining an acquisition program.

- Education 2078. Foundations of Librarianship.** Credit 3(3-0)  
Current trends in School Librarianship, administrative processes, principles of management and library cooperation.
- 2171. Materials and Methods in Teaching Reading.** Credit 3(3-0)  
(Formerly Education 504)  
The application of principles of learning and child development to the teaching of reading and related language arts.
- 2172. Introduction to Adult Education.** Credit 3(3-0)  
(Formerly Education 505)  
The history, philosophy, and general organization and administrative problems of adult education. Prerequisite: Psychology 2340.
- 2173. Methods in Adult Education.** Credit 3(2-2)  
(Formerly Education 506)  
Methods of informal instruction, group leadership, conference planning, and techniques in handling various issues of interest to adults. For persons preparing to conduct adult education programs as well as those preparing to serve as instructors or leaders in the public schools and/or in various agencies serving adults. Prerequisite Education 2172.
- 2174. Principles of School Law.** Credit 3(3-0)  
(Formerly Education 507)  
The study of statutes and judicial decisions of North Carolina affecting public school education. Legal authority, powers, and liabilities of school personnel, legal control and limitations of school finance, curriculum, and property.
- 2175. Library Usage for Classroom Teachers.** Credit 3(2-2)  
(Formerly Education 510)  
A study of library-classroom coordination of the instructional program. Attention given to cooperative planning for the scope and sequence of library study skills and reading guidance programs. Stress placed on the use of appropriate library materials as a means of vitalizing teaching.
- 2176. Preparation of Audiovisual Materials.** Credit 3(2-2)  
The development and application of basic skills in the production of graphic and audio teaching materials as media of communications. Preparing instructional materials as they relate to educational programs.
- 2177. Teaching the Slower Learner in the Regular Classroom.**  
(Formerly 503) Credit 3(3-0)  
A study of materials and methods for adjusting instruction in arithmetic, spelling, language, reading to the slower learning child in heterogeneous classes. Consideration given to discussion and study in the unit and activity program and the drill and skill program in relation to it.
- 2180. Theory of American Public Education.** Credit 3(3-0)  
(Formerly 601)  
An examination of the philosophical resources, objectives, historical influences, social organization, administration, support, and control of public education in the United States.
- 2184. History of American Education.** Credit 3(3-0)  
A study of the historical development of education in the United States emphasizing educational concepts and practices as they relate to political, social, and cultural developments in the growth of a system of public education.

**Education 2771. Teaching the Culturally Disadvantaged Learner.**

Credit 3(3-0)

Psychological and sociological influences on culturally deprived learners and their development; emphasis on the experiential lacks of the culturally deprived learner; and special teaching methods, materials and activities. A consideration of groups of American Indians, Negroes, Puerto Ricans, urban poor, rural poor, Mexican Americans, Mountain whites, and migrant workers who may be culturally deprived.

**SPECIAL EDUCATION****Advanced Undergraduate and Graduate****2372. Introduction to Exceptional Children.**

Credit 3(3-0)

(Formerly 501)

An overview of the educational needs of exceptional or "different" children in the regular classroom situation; emphasis placed on classroom techniques known to be most helpful to children having hearing losses, speech disorders, visual problems, emotional, social handicaps and intelligence deviation, including slow-learners and gifted children. An introduction to the area of special education. Designed for classroom teachers.

**2373. Psychology of the Exceptional Child.**

Credit 3(3-0)

(Formerly 502)

An analysis of psychological factors affecting identification and development of mentally retarded children, physically handicapped children, and emotionally and socially maladjusted children.

**2375. Measurement and Evaluation in Special Education.**

Credit 3(2-2)

(Formerly 504)

The selection, administration, and interpretation of individual tests; intensive study of problems in testing exceptional and extremely deviate children; consideration to measurement and evaluation of children that are mentally, physically, and emotionally or socially handicapped. Emphasis upon the selection and use of group tests of intelligence and the interpretation of their results.

**2376. Mental Deficiency.**

Credit 3(3-0)

A survey of types and characteristics of mental defectives; classification and diagnosis; criteria for institutional placement and social control of mental deficiency. Prerequisites: Special Education 2372 and 2373.

**2377. Materials Methods, and Problems in Teaching  
Mentally Retarded Children.**

Credit 3(2-2)

(Formerly 506)

Basic organization of programs for the education of the mentally retarded: classification and testing of mental defectives; curriculum development and principles of teaching intellectually slow children. Attention is also given to the provision of opportunities for observing and working with children who have been classified as mentally retarded. Prerequisites: Special Education 2372, 2373, 2375 and 2376.

**GRADUATE COURSES**

These courses are open only to graduate students. For descriptions of them, see the Graduate School Bulletin.

**2085. Curriculum Development.**

Credit 3(3-0)

**2086. Supervision of Instruction.**

Credit 3(3-0)

2087. Workshop in Methods of Teaching Modern Mathematics for Junior and Senior High School Teachers.	Credit 3(3-0)
2088. The Junior High School.	Credit 3(3-0)
2089. Problems in Educational Administration and Supervision.	Credit 3(0-6)
2090. Advanced Seminar and Internship in Educational Administration.	Credit 3(0-6)
2091. Public School Administration.	Credit 3(3-0)
2092. Readings in Modern Philosophy of Education.	Credit 3(3-0)
2093. Comparative Education.	Credit 3(3-0)
2094. Problems in the Improvement of Reading.	Credit 3(3-0)
2095. Public School Finance.	Credit 3(3-0)
2185. Philosophy of Education. (Formerly 608)	Credit 3(3-0)
2186. School Planning. (Formerly 609)	Credit 3(3-0)
2187. Curriculum in the Secondary School. (Formerly 610)	Credit 3(3-0)
2188. Utilization of Audiovisual Materials. (Formerly 611)	Credit 3(3-0)
2189. Methods and Techniques of Research. (Formerly 612)	Credit 3(3-0)
2190. Organization and Administration of Audiovisual Programs.	Credit 3(3-0)
2191. Workshop in Audiovisual Media. (Formerly 614)	Credit 3(1-4)
2192. Problems and Trends in Teaching Social Sciences. (Formerly 614)	Credit 3(3-0)
2193. Problems and Trends in Teaching Science. (Formerly 616)	Credit 3(3-0)
2194. School Publicity and Public Relations. (Formerly 619)	Credit 3(3-0)
2195. Educational Sociology. (Formerly 623)	Credit 3(3-0)
2196. Administration of the Elementary School. (Formerly 624)	Credit 3(3-0)
2197. Problems in Supervision of the Elementary School. (Formerly 625)	Credit 3(3-0)
2198. High School Administration. (Formerly 626)	Credit 3(3-0)
2199. Problems in High School Supervision. (Formerly 627)	Credit 3(3-0)



2285. Supervision of Student Teachers. (Formerly 625)	Credit 3(3-0)
2286. Issues in Elementary Education. (Formerly 639)	Credit 3(3-0)
2287. Issues in Secondary Education. (Formerly 640)	Credit 3(3-0)
2288. Current Research in Elementary Education. (Formerly 641)	Credit 3(3-0)
2289. Current Research in Secondary Education. (Formerly 642)	Credit 3(3-0)
2290. Workshop in Methods of Teaching Modern Mathematics. (Formerly 643)	Credit 3(3-0)
2291. Workshop in Methods of Teaching Language Arts. (Formerly 644)	Credit 2(2-0)
2292. Thesis Research. (Formerly 699)	Credit 6(0-12)
2293. Advanced Reference and Bibliography.	Credit 3(3-0)
2294. Introduction to Graduate Study. (Formerly 604)	Credit 2(2-0)
2295. Principles of Teaching. (Formerly 605)	Credit 3(3-0)
2296. Curriculum in the Elementary School. (Formerly 606)	Credit 3(3-0)
2297. Pupil Personnel Administration. (Formerly 630)	Credit 2(2-0)
2298. Principles and Problems in Cataloging and Classification.	Credit 3(3-0)
2299. Educational Statistics. (Formerly 631)	Credit 3(2-2)
2392. Seminar in Educational Problems. (Formerly 632)	Credit 3(1-4)
2393. The Community College and Post Secondary Education. (Formerly 633)	Credit 3(3-0)
2394. Principles of College Teaching. (Formerly 634)	Credit 2(2-0)

## THE PROGRAM OF TEACHER EDUCATION

The program of teacher education seeks to improve the quality of education available to the youth of North Carolina through improved preparation of teachers and other school personnel including administrators,



guidance counselors and supervisors. To that end, it offers both undergraduate and graduate programs of professional study which represent a continuum with similar objectives. The program seeks therefore to:

- (1) Prepare young people to take their places as competent members of the profession of education; and
- (2) Provide opportunities for advanced study for school personnel already established in education.

The office of the Registrar in collaboration with the Coordinator of Teacher Education is the central agency vested with the authority and responsibility to certify to the State Department of Public Instruction students who are to be recommended by the Institution for certification in the following fields:

- |                           |                                     |
|---------------------------|-------------------------------------|
| 1. Agricultural Education | 9. Home Economics Education         |
| 2. Art                    | 10. Industrial Education            |
| 3. Biology                | 11. Mathematics                     |
| 4. Business Education     | 12. Music                           |
| 5. Chemistry              | 13. Physical Education              |
| 6. English                | 14. Physics                         |
| 7. Foreign Languages      | 15. Social Sciences                 |
| 8. History                | 16. Vocational Industrial Education |

In recognition of this function, the approval or endorsement of the department providing courses in the subject matter areas in which the candidate is to be certified must be secured prior to the approval or endorsement of the Coordinator. The University reserves the right to refuse to recommend any applicants for certificates when they are deficient in mental or physical health, scholarship, character, or other qualifications deemed necessary for success in the profession of education.

The program in teacher education is divided into three separate but interrelated phases: (1) general education; (2) subject-matter or certification specialization; and (3) professional education.

### **General Education**

The general education phase of the Teacher Education Program functions to provide experience and learning which meet the fundamental needs of all teachers, both in the role of teacher and citizen in a democracy. General education provides for the student the understandings, the knowledge, the appreciation, and the sensitivity attainable through the study of a broad range of materials and concepts ranging across the humanities, the arts, the social sciences, the natural sciences and mathematics. It provides a broad understanding of the cultural heritage and of the physical and social environments.

General education constitutes 40 percent of the four-year Teacher Education Program. It is recommended that the student complete the general education requirements by the end of the sophomore year.

The specific purposes of the program in general education are to:

1. Develop competency in the ability to read, write and speak the English language clearly and effectively.
2. Develop an understanding of the development of world civilization and understandings of the basic concepts of the social studies, and an understanding of democracy as a way of life.
3. Develop a critical understanding of and a sensitivity to the aesthetic, philosophical, ethical, and imaginative values expressed in literature, art, music, religion and philosophy.
4. Develop an appreciation and understanding of the structure of science, of scientific inquiry, and of the main scientific principles.
5. Develop an appreciation and understanding of the structure and applications of mathematics.
6. Develop the knowledge, habits, and attitudes necessary to achieve and maintain sound physical and mental health.

### **Professional Education**

The professional education phase of the program in teacher education is designed to discover the prospective teacher of promise and to develop the competencies necessary for beginning teachers at the secondary level.

Approximately eighteen percent of the undergraduate curriculum is devoted to professional education. This phase is designed to achieve the following objectives:

1. To develop understanding of human growth and development with special emphasis on the adolescent years.
2. To develop understanding of the nature of learning, how it takes place, and some factors which may enhance or inhibit its progress.
3. To develop understanding of materials and methods as they relate to learning in the student's area of specialization.
4. To develop skills necessary for wise use of materials, methods and resources applicable to instruction in the student's area of specialization.
5. To develop understanding of the purposes, organization and administration of the school system, with special emphasis on the role of the secondary teacher in the total program.
6. To develop understanding of the social, historical and philosophical foundations undergirding the American pattern of education.
7. To develop a knowledge of the total instructional process through direct observation and participation in teaching under strict supervision.
8. To develop the skills necessary for the manipulation of materials and methods and the guidance of the learning process through direct observation and practice of teaching under strict and constructive supervision.

### **Teacher Education Admission and Retention Standards Admission**

To be admitted to the Teacher Education Program a student should file an application from the chairman of the academic department in which he plans to major during his sophomore year. The student must have an overall grade point average of 2.00 and a major field average of 2.00 before he can be admitted to the Program.

Prior to his fourth semester in residence each applicant must satisfy the following requirements:

1. Successfully complete Mathematics 3601 and 3602 or 3611.
2. Successfully complete English 2401, 2402, and 2425 with a grade of "C" or better in each course.
3. Take a personality inventory test.
4. Show evidence of good health. A statement from a physician is necessary. The health of a prospective teacher should not restrict his ability as a teacher. The details regarding what constitutes health not good enough for a teacher will be determined in consultation with the Student Health Director.
5. Demonstrate his ability to use the English language effectively.

During the fourth semester of a student's residence, his complete profile will be examined by the Teacher Education Council. At this time, the student must have a minimum cumulative average of 2.00 before the Teacher Education Council will entertain his application for Teacher Education.

### **Retention**

To remain in the Teacher Education Program, the student must:

1. Maintain an academic average of 2.00 in the areas in which he seeks certification and in professional education. In addition, a student must repeat any required major field course or professional education course, except Psychology 2320 or Education 2120, when he earns a grade of "D". The repetition will not be considered in the hours required for graduation but the hours and the grade for the repetition will be included in the determination of the overall grade point average.
  - a. Should a student's academic average fall below 2.00 in either the area he seeks certification or the area of professional education, he will be placed on probation or dropped from the Teacher Education Programs, depending on the level to which his academic marks fall.
  - b. Once a student has been dropped from the Teacher Education Program because of poor scholarship, he may reapply with the Coordinator of Teacher Education providing his academic average has returned to 2.00 in the area he seeks certification and/or in the area of professional education.

### **Readmission to Teacher Education Program**

Once a student has been dropped from the Teacher Education Program for any reason, the following steps must be taken before a student will be readmitted to the Teacher Education Program:

1. The student must file a formal application for readmittance to the Teacher Education Program with the Coordinator of Teacher Education.
2. The Coordinator of Teacher Education must bring the application of the student along with the student's complete profile before the Teacher Education Council for action.
3. The Coordinator of Teacher Education will formally notify, in writing, the student, Department Chairman, Dean of the School involved and the Dean of Academic Affairs of the action of the Teacher Education Council with reference to the student's application for readmission to the Teacher Education Program.

### **Transfers to the Teacher Education Program**

These policies refer to the student who starts his college program in an academic area (such as mathematics or chemistry) and decides to become a teacher late in his college career. The following requirements are necessary for admittance to the Teacher Education Program under these conditions:

1. The student must have satisfied the general education requirements.
2. The student must have a 2.00 grade point average in his academic work and the general education program.
3. The student must apply formally to be admitted to the Teacher Education Program. Application will be made to the Chairman of the Department in which he plans to major.
4. The student must meet the same criteria as are recommended for other students in Suggested Policies Governing Admission to the Teacher Education Program.
5. The Chairman of the Academic Department has the responsibility of enrolling the student in the Teacher Education Program after the student has met all requirements.

### **Certification**

When the student completes the Teacher Education sequence, he must apply for state certification by (1) requesting a certification application form from the Registrar's office and (2) requesting a copy of his official transcript to be attached to the application.

The student must take the National Teacher Examination, both the Common and the Teaching Area Examinations, and he must have these scores on file in the Teacher Education Office. The Student must have the minimum scores required by the State of North Carolina before he will be recommended by the University for a North Carolina teaching certificate.

## DEPARTMENT OF PSYCHOLOGY AND GUIDANCE

CALVIN R. STEVENSON, *Chairman*

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The Department of Psychology and Guidance assumes four functions in the educational program of the University. First, through graduate courses in child growth and development, educational psychology, measurement and evaluation, and mental hygiene, the department attempts to provide for the needs of graduate education majors in the psychological foundations of education. Second, the department in collaboration with other departments of the University provides a sequence of guidance and psychology courses required for the graduate education major with a concentration in guidance. For a more detailed description of these two functions, see the *Graduate School Bulletin*.

The third and fourth functions of the department involve the provision of sequences of courses designed to meet the needs of the undergraduate minor and undergraduate major in psychology, respectively. These two functions are described in some detail below following which course descriptions are presented.

### The Undergraduate Program in Psychology

Both the undergraduate minor and major programs in psychology are primarily aimed at providing a broad general education rather than specialized professional training in psychology. If it can be assumed that this objective is achieved through the provision of experiences which will assure maximum development of the individual intellectually, emotionally, socially, and physically, then the unique contributions of the undergraduate psychology programs are at least two in number:

1. development of psychological knowledge of potential usefulness in solving problems of personal and social living; and,
2. development of a better understanding of the problems of the arts and sciences by helping students more effectively approach these as problems of scientific inquiry.

With respect to preprofessional training in psychology, both programs are designed to attempt to develop the following additional attributes in students who minor or major in the discipline.

1. Knowledge of the many facts and, as yet, relatively few principles or laws of behavior which make up the subject-matter of psychology;
2. Rigorous habits of thinking;
3. Acceptance of knowledge of behavioral phenomena as a value in itself rather than knowledge acquired solely for immediate and practical ends; and,
4. Acceptance of the probability nature of most psychological data and hence, the need for attitudes of caution and responsibility in the acceptance of these data.



It is assumed that these preprofessional objectives will be attained with minors in psychology and majors in psychology differentially and that these differences will represent matters of degree rather than kind.

### **The Minor in Psychology**

The minor program in psychology is designed for the student who desires training in the discipline beyond the level of an introductory course but whose occupational objectives are in fields other than psychology. These include law, medicine, education, social welfare, business administration, and the like. Such students will normally pursue those general education courses and major courses which are prescribed by the departments in which they are registered during the first two years of college work.

In addition, during their sophomore year, they will pursue Psychology 2020. General Psychology and Psychology 2022. Statistical Methods (or an equivalent first course in statistics) the first semester and Psychology 2023. Social Psychology the second semester. During the junior and senior years, the psychology minor will pursue an additional fifteen semester hours in psychology selected from among other course offerings of the department, the only restriction being that the selection is limited to those courses whose prerequisites have been previously met.

### **The Major in Psychology**

The major program is designed for the student whose occupational goal, following pre-professional undergraduate and professional graduate training is in the general field of psychology. Samples of specific positions for which these two levels of training prepare the individual are: college professor, experimental psychologist, social psychologist, public opinion analyst, test designer, clinical psychologist, research industrial psychologist, management consultant, school psychologist, rehabilitation worker, vocational counselor, and psychometrist.

Students with majors in psychology must first satisfy general education graduate requirements prescribed by the School of Education with respect to English, foreign languages, health and physical education, humanities, and orientation. The mathematics requirements for psychology majors include Freshman Mathematics I and II or one course in College Algebra and one course in Analytic Geometry and Calculus; the science requirements include one course in Biological Science, one course in Human Anatomy and Physiology, and one course in Physical Science; and the social science requirements include Western Civilization I and II and one course in Principles of Sociology. Psychology majors will preferably complete Elementary Psychology rather than the course in General Psychology which represents a School general education requirement for non-psychology majors.

Requirements in the area of specialization, including Elementary Psychology, are completion of twelve (12) courses provided by the Department of Psychology and Guidance with a minimum cumulative grade point average equaling or exceeding the overall minimum cumulative grade point average required by the University for graduation. Nine of the



courses, including three courses of one academic year's duration, are prescribed. The additional courses are departmental electives and should be selected with the approval of the student's advisor from among those listed below the *Suggested Course Sequence for the Major in Psychology*.

### Suggested Course Sequence for the Major in Psychology

#### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Biological Science 1501 .....	4	—
Education 2100 .....	1	—
English 2401, 2402 .....	4	4
English 2403* .....	—	1
History 2800, 2801 .....	3	3
Mathematics 3601, 3602, or 3611, 3613 ....	3-4	3-4
Physical Science 1601 .....	—	4
Physical Education 2701, 2703, or 2711 (men)	1	1
or		
Physical Education 2702, 2704 (women) ...	1	1
Aerospace Studies 7001 & 7002** .....	1, 0	1, 1
7003 & 7004		
Military Science 7101, 7102** .....	1	1
	16-18	(Men) 16-19
	16-17	(Women) 16-17

#### Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2425 .....	2	—
French 2500, 2501 or 2520, 2521 or		
German 2502, 2503 or Spanish 2530, 2531 ..	3	3
Health Education 2700 .....	2	—
Humanities 2434, 2435 .....	3	3
Psychology 2021, 2023 .....	3	3
Psychology 2022 .....	—	3
Sociology 2831 .....	3	—
Zoology 1533 .....	—	4
Aerospace Studies 7021 & 7022**		
7023 & 7024 .....	1	1
Military Science 7121, 7122** .....	2	2
	16-18	(men) 16-18
	16	(women) 16

#### Junior Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Psychology 2030, 2031 .....	3	2
Psychology 2032, 2033 .....	3	3
Psychology 2034 .....	3	—
Departmental Electives .....	3	6
Free Electives .....	3	4
	15	15

\* Required of Freshmen failing to achieve the critical score on a test of reading skills.

\*\* Optional courses.

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Psychology 2039, 2041 .....	3	3
Psychology 2042, 2043 .....	3	3
Free Electives .....	9	9
	<hr/> 15	<hr/> 15

**Departmental Electives Courses for the Major in Psychology**  
**(A minimum of three courses required)**

Psychology 2035. Educational Psychology.	Credit 3(3-0)
Psychology 2036. Tests and Measurements.	Credit 3(2-2)
Psychology 2038. Computer Programming.	Credit 3(1-4)
Psychology 2040. Physiological Psychology.	Credit 3(2-2)
Psychology 2044. Applied Psychology.	Credit 3(2-2)
Psychology 2045. Industrial Psychology.	Credit 3(2-2)
Psychology 2071. Psychology of the Exceptional Child. (Same as Spl. Education 2373)	Credit 3(3-0)
Psychology 2072. Mental Deficiency. (Same as Spl. Education 2376)	Credit 3(3-0)

**COURSES IN GUIDANCE****Advanced Undergraduate and Graduate**

2378. Introduction to Guidance.	Credit 3(3-0)
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A foundation course for prospective teachers, part-time or full time counselors who plan to do further work in the field of guidance or of education. Special consideration will be given to the nature, scope, and principles of guidance services.

**Graduate**

These courses are open only to graduate students. For description of them, see the *Graduate School Bulletin*.

2385. Guidance Practicum.	Credit 3(1-4)
2386. Organization and Administration of Guidance Services.	Credit 2(2-0)
2387. Research Seminar.	Credit 3(1-4)
2395. Measurement for Guidance.	Credit 3(2-2)
2396. Techniques of Individual Analysis.	Credit 2(2-0)
2397. Educational and Occupational Information.	Credit 3(3-0)
2398. Introduction to Counseling.	Credit 3(3-0)
2399. Case Studies in Counseling.	Credit 2(2-0)

**COURSES IN PSYCHOLOGY****Undergraduate**

- 2020. General Psychology.** Credit 3(3-0)  
(Formerly Psychology 2320)

An introduction to psychology as a life science especially designed for the major in areas other than psychology. Topics given major consideration include maturation and development; motivation, emotion, and personality; mental health; intelligence and aptitudes; perception and attention; learning, forgetting, language, and thinking; social influences, attitudes, and beliefs; and, vocational adjustment.

- 2021. Elementary Psychology.** Credit 3(3-0)

An introduction to psychology as a behavioral science required of the major in psychology with enrollment restricted to such majors. Major areas of consideration include maturation and development; nervous system and internal environment; physiological basis of behavior; sensory processes and perception; learning, thinking and language; motivation, emotion, and personality; and, psychological testing.

- 2022. Statistical Methods.** Credit 3(3-0)  
(Same as Mathematics 3624)

Analysis and interpretation of research data. Descriptive statistics (frequency distributions, centrality, variability and correlation of measures), introduction to statistical inference (normal curve sampling theory, chi-square tests of statistical hypotheses, t-tests, analysis of variance, Scheffe test ratio). Prerequisite: Mathematics 3602 or 3613.

- 2023. Social Psychology.** Credit 3(3-0)  
(Formerly Psychology 2324)

An introduction to the study of the behavior of the individual in relation to factors in his social environment. Socialization, enculturation, attitude formation and modification, social influences on perceptual and conceptual processes, and social interaction. Prerequisite: Elementary Psychology or General Psychology.

- 2030. Child Development.** Credit 3(2-2)  
(Same as Home Economics 1921)

A comprehensive study of the physical, social, emotional, personality, language and intellectual development of the child from birth through early childhood. Prerequisites: Elementary Psychology or General Psychology and Social Psychology.

- 2031. Adolescent Development.** Credit 2(2-0)  
(Same as Home Economics 1922)

Continuation of Child Development with emphasis on the periods of middle childhood through adolescence.

- 2032. Experimental Psychology I.** Credit 3(2-2)  
(Formerly Psychology 2360—Introductory Experimental Psychology)

The first of a two-semester sequence in experimental psychology unifying subject matter (content) and methodology. Emphasis on application of experimental methodology in the analysis of such behavioral phenomena as perceptual processes, motivation, frustration, and conflict. Prerequisite: Elementary Psychology or General Psychology and Statistical Methods.

- 2033. Experimental Psychology II.** Credit 3(2-2)

Continuation of Experimental Psychology I. Emphasis on application of experimental methodology in the analysis of such behavioral phenomena

as simple and complex learning, transfer, retention, forgetting, perceptual-motor learning, verbal learning, and problem solving. Prerequisite: Experimental Psychology I.

**2034. Abnormal Psychology.**

Credit 3(3-0)

Behavior deviations and psychological disorders occurring during the several developmental stages; basic concepts employed in psycho-pathology, mental hygiene, and psychiatry. Prerequisite: Elementary Psychology or General Psychology.

**2035. Educational Psychology.**

Credit 3(3-0)

(Formerly Psychology 2340)

A study of basic problems underlying the psychology of education; individual differences, development of personality, motivation of learning and development, nature of learning and procedures which best promote its efficiency. Prerequisite: Psychology 2030 or 2031.

**2036. Tests and Measurements.**

Credit 3(2-2)

(Formerly Psychology 2341)

A basic study of standardized and teacher-made measuring devices, acceptable methods of selecting, administering, and interpreting all types of tests applicable to the school and classroom. Prerequisite: Psychology 2035 or Education 2154.

**2037. Mental Hygiene.**

Credit 3(3-0)

(Formerly Psychology 2343)

A study of basic principles of adjustment and mental hygiene. Prerequisite: Psychology 2020 or 2021.

**2038. Computer Programming.**

Credit 3(1-4)

(Formerly Psychology 2463)

The theory of and practical experience in block diagramming, programming and computer operation. Programming with the P.L. I language and processing via teletypewriter remote console connected to an IBM 360. All students will be required to write, test, and run original as well as standard computer programs.

**2039. Theories of Personality.**

Credit 3(3-0)

(Formerly Psychology 2371—Theories of Personality Development)

Contemporary theoretical formulations of the structure and development of personality and their empirical bases. Prerequisites: Psychology 2031, 2033, and 2034.

**2040. Physiological Psychology.**

Credit 3(2-2)

A study of the physiological and chemical processes (and their anatomical substrates) that intervene between the arrival of sensory impulses in the central nervous system and the elaboration of responses to them. Prerequisites: Completion of a course in human anatomy and physiology and Elementary Psychology or General Psychology.

**2041. Psychology of Learning.**

Credit 3(3-0)

A general survey of those changes in performance as a function of practice subsumed under the label "learning." Consideration is given to the basic controlling variables—individual responses; such interactions of learned responses as chaining and transfer of training; and processes under the control of implicit and mediating activity such as retention and problem solving. Prerequisite: Senior classification with a major in psychology.

**2042. Seminar in Psychology I.** Credit 3(3-0)

A study of selected major systematic views and theoretical issues in psychology. Each student participates in supervised research in psychological journals and other materials leading to an oral presentation and written paper on a substantive systematic view or issue in psychology. Prerequisite: Senior classification with a major in psychology.

**2043. Seminar in Psychology II.** Credit 3(3-0)

A continuation of Psychology 2042.

**2044. Applied Psychology.** Credit 3(2-2)  
(Formerly Psychology 2361)

The utilization of psychological principles in five areas of American culture; effectively training new generations; maintaining mental health; administering justice; promoting economic progress; and, facilitating efficient production. Prerequisite: Psychology 2020. Spring semester, odd numbered years.

**2045. Industrial Psychology.** Credit 3(2-2)  
(Formerly Psychology 2362)

A consideration of the significance of individual differences in industry; employee selection and training; reduction of monotony and fatigue and the promotion of efficiency; accident prevention; psychological factors in employee turnover. Prerequisite: Psychology 2020. Spring semester, even numbered years.

**Advanced Undergraduate and Graduate****2071. Psychology of the Exceptional Child.** Credit 3(3-0)  
(Same as Special Education 2373)

An analysis of psychological factors affecting identification and development of mentally retarded children, physically handicapped children, and emotionally and socially maladjusted children.

**2072. Mental Deficiency.** Credit 3(3-0)  
(Same as Special Education 2376)

A survey of types and characteristics of mental defectives; classification and diagnosis; criteria for institutional placement and social control of mental deficiency. Prerequisites: Psychology 2071.

**2073. Personality Development.** Credit 3(3-0)

A study of the basic processes in personality development, the contents of personality, and consequences of personality development.

**Graduate**

These courses are open only to graduate students. For descriptions of them, see the *Graduate School Bulletin*.

**2096. Educational Psychology.** Credit 3(3-0)  
(Formerly 2390)**2097. Child Growth and Development.** Credit 3(3-0)  
(Formerly 2389)**2098. Measurement and Evaluation.** Credit 3(2-2)  
(Formerly 2391)**2099. Mental Hygiene for Teachers.** Credit 3(3-0)  
(Formerly 2388)

## DEPARTMENT OF HEALTH, PHYSICAL EDUCATION AND RECREATION

ROY D. MOORE, *Chairman*

The Objectives of the Department of Health and Physical Education are:

1. To provide instruction in a wide variety of physical education activities to meet the needs and interests of all students in the required general education program of the University.
2. To promote participation in wholesome extra-class activities through sponsoring and supervising such organizations as the Aquatics Club, Cheerleaders' Squad, Dance Group, Gymnastic Club, Women's Athletic Association, Intramural Leagues, and Officiating Club.
3. To provide recreational outlets for students and members of the College community through conduct of informal recreational activities.
4. To enrich the total University program through cooperation with the programs of such units of the University as the music and dramatic groups, alumni association, agricultural homemaking groups, guidance and health service divisions.
5. To provide necessary preparation for students planning careers as teachers of elementary, junior and senior high school health and physical education and as athletic coaches and recreational leaders.
6. To provide courses in health and physical education which meet State and National Teacher Certification standards.

Each major is required to complete a minimum total of seventeen (17) competencies of the following:

- 3—Team Sports
- 3—Individual and Dual Sports
- 2—Gymnastics
- 4—Dance
- 4—Swimming

Each major is also required to specialize in one of the following areas: Team Sports, Individual and Dual Sports (includes officiating), Gymnastics, Dance, or Swimming.

During the Junior and Senior years before student teaching, the major will be assigned to an instructor and assist in the basic program. The Freshmen Physical Education majors will be placed in the same section of PE 2701 and PE 2702.



**Suggested Program for Physical Education Majors****Freshman Year**

<i>Spring</i>	<i>Semester Hrs.</i>	<i>Fall</i>	<i>Semester Hrs.</i>
2402	(4)	English 2401 .....	(4)
3602	(3)	Mathematics 3601 .....	(3)
2801	(3)	Social Science 2800 .....	(3)
	(3)	Biological Science 1501 ....	(4)
	(4)	Physical Science 1601 .....	
		Physical Education 2701 ....	
		(2702) (2703) (2704) ...	(1)
	(1)	English 2403 (1 hour either semester) .....	
	(1)	Education 2100 .....	(1)
		Air or Military Science	
		or Electives .....	(1)
	16+		17+

**Suggested Program in Health & Physical Education for Major Students****Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2120, 2121 .....	2	2
English 2425 .....	2	—
Humanities 2434, 2435 .....	3	3
Foreign Language .....	3	3
Psychology 2320 .....	3	—
Zoology 1512 .....	—	4
Health Education 2700, 2720 .....	2	2
Physical Education 2729, 2731 .....	1	1
Physical Education 2724, (W) 2725 (W) ....	1	1
Physical Education 2737, (M) 2738 (M) ....	1	1
Physical Education 2726, (W) 2727 (W) ....	1	1
Physical Education 2739, (M) 2721 (M) ....	1	1
Physical Education 2711, 2728 .....	1	1
Air or Mil. Sc. (Optional) .....	2	2
	21	20

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2154 .....	3	—
Psychology 2341 .....	—	3
Zoology 1556, 1565 .....	3	3
Health Education 2740 .....	2	—
Physical Education 2752 .....	—	2
Physical Education 2749 .....	3	—
Health Education 2745 .....	—	3
Physical Education 2747, 2734 .....	1	1
Physical Education 2753, 2755 .....	1	1
Physical Education 2754, (W) 2756 (W) ....	2	2
Physical Education 2745, (M) 2746 .....	2	2
Physical Education 2761, 2748 (M) .....	2	2
Physical Education 2751 .....	2	—
	21	19

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Education 2160 .....	2	—
Health Education 2760 .....	2	—
Education 2140 .....	—	3
Physical Education 2763 .....	2	—
Education 2143 .....	—	2
Education 2161 .....	—	6
Physical Education 2766 .....	3	—
Physical Education 2767, 2768 .....	1	1
	10	12

**HEALTH EDUCATION COURSES****Undergraduate**

2700. **Personal Hygiene.** Credit 2(2-0)  
(Formerly 111)

This course is designed to give the student definite knowledge of the principles of personal health, both mental and physical, and to prepare him for self-guidance through and beyond the college years. Emphasis is placed upon information pertinent to social behavior today and upon effective approaches to college living.

2720. **Community Health.** Credit 2(2-0)  
(Formerly 234)

An introductory study of environmental factors which affect health. Emphasis will be placed upon the health of the group rather than that of the individual. Consumer health, community resources for health, and prevention and control of disease through organized community efforts will be stressed. (Prerequisite 2700)

**HEALTH EDUCATION COURSES FOR MAJOR STUDENTS**

2740. **Advanced Hygiene and Principles of Health Education.** Credit 2(2-0)  
(Formerly 336)

A comprehensive review of health facts and scientific principles applicable to the prospective teacher, the school child, and the community. Fundamentals of health promotion in the school program are considered. Prerequisite: HE 2700, 2720.

2745. **First Aid, Safety, and Prevention of Injuries.** Credit 3(2-2)  
(Formerly 338)

Techniques of first aid to the injured in the home, school and community and the teaching of safety measures to be practiced in daily living; the prevention and care of injuries occurring in physical education classes and in competitive sports. The standard Red Cross First Aid Certificate is awarded upon successful completion of the course. Prerequisite: Zool. 1556.

2760. **The Teaching of Health Education.** Credit 2(2-1)  
(Formerly Physical Education 444)

Methods, materials and procedures for the teaching of health in the elementary and secondary schools. Prerequisites: Health Education 2720 and 2745. Prerequisites: Zool. 1556, 1565 and HE 2740.

**ADVANCED UNDERGRADUATE AND GRADUATE  
HEALTH COURSES**

- 2771. Personal, School, and Community Health Problems.** Credit 3(3-0)  
(Formerly 502)

A study of personal, school and community health problems and resources. Emphasis is placed on the control of communicable diseases, healthful school living and the development in individuals of the scientific attitude and a positive philosophy of healthful living.

- 2772. Methods and Materials in Health Education for Elementary and Secondary School Teachers.** Credit 3(3-0)  
(Formerly 503)

A study of the fundamentals of the school health program, pupil needs, methods, planning instruction, teaching techniques, selection and evaluation of materials for the elementary and secondary programs, and the use of the community resources.

**General Physical Education Requirement****Requirements for Women**

**FRESHMEN REQUIREMENTS:** Physical Education 2702 and 2704.

**Requirements for Men**

**FRESHMEN REQUIREMENTS:** Physical Education 2701 and 2703 or 2711.

- 2701. Fundamentals of Physical Education. Men. Fall.** Credit 1(0-2)  
(Formerly 101)

To develop an understanding of the value and the logic behind exercise and sports activity and regular habits of exercise, to determine the physical fitness needs of the student with the nature, basic rules, techniques and skills of a wide variety of popular American sports and guide him into activities which will be of most interest and benefit to him now and in the future.

- 2702. Fundamentals of Physical Education I. (Women)** Credit 1(0-2)  
(Formerly 102)

Movement exploration, basic concepts, activities, skills, and form essential to play and work. Evaluation of physical potential and improvement of function through progressive sequence of experiences. Sports, dance, and physical education in contemporary culture.

- 2703. A Continuation of 2701.** Credit 1(0-2)  
(Formerly 111)

- 2704. Fundamentals of Physical Education II.** Credit 1(0-2)  
(Formerly 104)

A continuation of 2702.

- 2711. Swimming, Beginning. Fall or Spring.** Credit 1(0-2)  
(Formerly 131)

To teach the elementary skills as outlined in the American Red Cross Standards for beginning swimmers.

- 2712. Adapted Physical Education.** Credit 1(0-2)

Special activities designed for those students whose physical examination show that they are unable to participate in the regular physical education classes.

- 2713. Adapted Physical Education.** Credit 1(0-2)  
A continuation of Physical Education 2712.
- 2721. Softball, Soccer, and Volleyball. (Men)** Credit 1(0-2)  
(Formerly 201)  
To develop an understanding of rules, strategy and performance skills in softball, soccer, and volleyball.
- 2722. Touch Football, Speedball, and Basketball. (Men)** Credit 1(0-2)  
(Formerly 203)  
To develop an understanding of rules, strategy and performance skills in touch football, speedball, and volleyball.
- 2724. Team Sports: Hockey, Soccer, Basketball. (Women)** Credit 1(0-2)  
(Formerly 202)  
Fundamental techniques, rules, strategy, terminology, and cultural significance of field hockey, soccer, and basketball.
- 2725. Team Sports: Volleyball, Speedball, Softball. (Women)** Credit 1(0-2)  
(Formerly 204)  
Fundamental techniques, rules, strategy, terminology and cultural significance of volleyball, speedball, and softball.
- 2726. Individual Sports: Archery, Tennis, Badminton, Golf.** Credit 1(0-2)  
(Formerly 212)  
Fall or spring. Techniques, rules, playing, courtesies, and significance of individual sports to college and after school life.
- 2727. Individual Sports: Recreational Games.** Credit 1(0-2)  
(Formerly 214)  
Shuffleboard, handball, deck tennis, table tennis, croquet, modified bowling, and horseshoe.
- 2728. Swimming for Intermediates.** Credit 1(0-2)  
(Formerly 233)
- 2729. Modern Dance.** Credit 1(0-2)  
(Formerly 222)  
To develop an understanding of the various qualities of movement, the techniques of obtaining and applying them in the art form of dance.
- 2731. Folk and Tap Dance.** Credit 1(0-2)  
(Formerly 224)  
Clog, tap, and folk dances characteristic of many nationalities.
- 2732. Rhythmics.** Credit 1(0-2)  
(Formerly 225)  
Suitable types of rhythmical activities for boys and men, including fundamental movements, folk, tap, social dance, and singing games.
- 2733. Social and Country Dance.** Credit 1(0-2)  
(Formerly 226)  
Ballroom, square, and round dance forms; fundamentals, leading and following, dance etiquette.
- 2734. Advanced Gymnastics. (Men) (Women)** Credit 1(0-2)  
Men: Fundamental skills and routines on the following gymnastic apparatus: rings, parallel bars, horizontal bar, and side horse.  
Women: Fundamental skills and routines on the following gymnastic apparatus: uneven parallel bars, balance beam, side horse vault, and floor exercise. This course will include basic evaluation and methods.

2735. **Adapted Physical Education.** Credit 1(0-2)  
A continuation of 2713.
2736. **Adapted Physical Education.** Credit 1(0-2)  
A continuation of 2735.
2741. **Beginning Golf.** Credit 1(0-2)  
(Formerly 219)  
To develop techniques and performance skills in golf.
2742. **Skating, for Beginners.** Credit 1(0-2)  
(Formerly 213, 214)  
To develop performance skills and techniques in ice skating.
2743. **Bowling.** Credit 1(0-2)  
(Formerly 315, 316)  
To develop performance skills and techniques in bowling.
2744. **Beginning Tennis and Badminton.** Credit 1(0-2)  
(Formerly 217)  
To develop an understanding of rules, strategy and performance skills in tennis and badminton.
2757. **Swimming, Life Saving.** Credit 1(0-2)  
(Formerly 235)  
To teach the fundamental skills and techniques as outlined in the American Red Cross Standards for Life Saving and Water Safety.

#### PHYSICAL EDUCATION COURSES FOR MAJOR STUDENTS

2737. **Group Games, Football and Basketball.** Credit 1(0-3)  
(Formerly 271)  
Practice methods and applied techniques of a large variety of games of lower organization of the circle, group and line types which might be suitable for playground, gymnasium, camp and for adult gatherings. Concentration on developing performance skills and understanding of football and basketball.
2738. **Baseball, Track and Field.** Credit 1(0-3)  
(Formerly 275)  
To develop performance skills, methods, and techniques in baseball, track, and field.
2739. **Individual Sports and Combatives.** Credit 1(0-3)  
(Formerly 277)  
To develop performance skills in combatives and a wide variety of individual sports including shuffleboard, handball, table tennis, badminton, croquet, archery, golf, and tennis.
2740. **Introduction to Physical Education.** Credit 2(2-0)  
(Formerly 240)  
Survey of the nature and scope of physical education; interpretation of objectives and philosophy of physical education as a part of the total educational program. Qualifications, responsibilities, and opportunities of professional personnel. Evaluation of personal fitness and suitability to area of interest.
2745. **The Teaching of Football, Soccer and Basketball.** Credit 2(1-2)  
(Formerly 331 and 332)  
Consideration is given to the teaching of history, rules, performance skills, methods of organizing practices, strategy, team offenses and defenses, and various formations for the three sports.



- 2746. Lifesaving and Water Safety.** Credit 2(1-2)  
(Formerly 333)

The teaching of swimming and life saving. Skills required for the American Red Cross Standard Life Saving Certificate; instruction in desirable methods and techniques for the teaching of swimming and aquatic events. Prerequisite: 2728 or equivalent.

- 2747. Gymnastics I. (Men and Women)** Credit 2(1-2)

An introduction to the basic skills of tumbling, floor exercise, trampoline and different types of vaulting. The course will include methods and basic evaluation.

- 2748. The Teaching of Individual Sports and Net Games.** Credit 2(1-2)  
(Formerly 336)

Methods and techniques for teaching individual sports including shuffleboard, handball, table tennis, badminton, archery, deck tennis, volleyball, newcomb, and paddle tennis.

- 2749. History and Principles of Physical Education.** Credit 3(3-0)  
(Formerly 339)

The evolution of physical education from the earliest time to the present day. Consideration of the relationship of physical education to education and to national life and ideas through the different historical periods. A critical analysis of the scientific basis for physical education with applications of the aims and objectives to the modern concepts of education.

- 2751. Elementary School Physical Education.** Credit 2(1-2)  
(Formerly 340)

Philosophy, program planning, and method for teaching children. Observation and instruction of children at various grade levels. Experiences in simple games, relays, stunts, tumbling, creative rhythms and dance, movement exploration. Prerequisite: 2740.

- 2752. Kinesiology.** Credit 2(2-0)  
(Formerly 341)

A study of the body movements, types of muscles exercise and their relation to the problems of body development. Prerequisite: Zoology 1556.

- 2753. Dance Composition.** Credit 1(0-2)  
(Formerly 371)

The rhythmical and musical basis of dance, the elements of dance construction. Theory and practice of skills involved. Prerequisite: 2729.

- 2754. Techniques and Methods in Fall and Indoor Activities.** Credit 2(1-4)  
(Formerly 372)

Theory and practice of field hockey, soccer, archery, golf, basketball, gymnastics, and apparatus. Analysis of performance skills, materials, and techniques. Opportunity for officiating and obtaining local and national official rating.

- 2755. Applied Dance.** Credit 1(0-2)  
(Formerly 373)

A coordinated course designed to increase skill in technique and the use of related art materials. Prerequisites: PE 2729, 2731, 2753.

- 2756. Techniques and Methods in Seasonal And Indoor Activities.** Credit 2(1-4)  
(Formerly 374)

Theory and practice of volleyball, recreational games, speedball, softball, tennis, badminton, track, and field. Materials and teaching techniques, analysis of skills involved. Opportunity for obtaining officials' ratings.



- 2760. Methods of Research and Evaluation in Health and Physical Education.** Credit 2(1-2)  
(Formerly 401) (Same as Education 2160.)

- 2761. Community Recreation.** Credit 2(2-0)  
(Formerly 442)

A study of city, state, and national organization. Practice in the general principles and techniques in the organization and promotion of leisure activities for home, school, and community.

- 2762. The Teaching of Physical Education.** Credit 2(1-2)  
(Formerly 443)

Same as Education 2143.

- 2763. Adapted Physical Education.** Credit 2(2-0)  
(Formerly 444)

Methods of examining and determining needs of the handicapped; activities suitable for individuals with abnormal body conditions, and the conduct of a program of restricted activities to meet their needs.

- 2764. Minor Problems in Health Education and Physical Education.** Credit 2(2-0)  
(Formerly 447)

This course is designed primarily for seniors to provide them with an opportunity to investigate selected professional problems.

- 2765. Problems in Physical Education.** Credit 2(2-0)  
(Formerly 448)

Special administrative problems in the organization of physical education programs and the coordination of the different phases pertinent to men and women of professional construction in the light of historical backgrounds, intramural activities, girls' athletics, athletic insurance, and athletic associations.

- 2766. The Organization and Administration of Health and Physical Education.** Credit 3(3-0)  
(Formerly 449)

Philosophy and policies in the administration of a health and physical education program, including health service, healthful school living, health instruction, the classification of students, the staff, teaching loads, time schedule, finance, the gymnasium, locker-rooms, equipment, intramural and inter-scholastic athletics. Prerequisites: 2749 and permission of advisor.

- 2767. Advanced Techniques and Methods in P. E. Activities.** Credit 1(0-2)  
(Formerly 471)

A course designed to increase skill in technique and the use of related materials in the areas of dance, sports, gymnastics, aquatics, fundamentals of marching and conditioning activities. Emphasis is placed upon the development of competency in areas of individual student weakness.

- 2768. Physical Education Specialization.** Credit 1(0-2)  
(Formerly 472)

A continuation of 471. Opportunities for careful exploration in dance, aquatics, sports, gymnastics through skill improvement, independent study, field experience, and special projects pertinent to the particular area of interest.

**COURSES FOR ADVANCED UNDERGRADUATE AND GRADUATE STUDENTS****2775. Current Problems and Trends in Physical Education. Credit 3(3-0)**  
(Formerly 501)

A practical course for experienced teachers. Consideration given to individual problems in physical education with analysis of present trends.

**2776. Administration of Interscholastic and Intramural Athletics. Credit 3(3-0)**  
(Formerly 504)

A study of the relation of athletics to education, and the problems of finance, facilities, scheduling, eligibility, and insurance. Consideration given to the organization and administration of intramural activities in the school program.

**2777. Community Recreation. Credit 3(3-0)**  
(Formerly 505)

A study of the recreational facilities and problems with consideration being given to the promotion of effective recreational programs in rural and urban communities.

**2778. Current Theories and Practices of Teaching Sports. Credit 3(3-0)**  
(Formerly 506)

Methodology and practice at various skill levels. Emphasis placed on seasonal activity.

# **DIVISION OF INDUSTRIAL EDUCATION AND TECHNOLOGY**



**PRICE HALL**

## **DIVISION OF INDUSTRIAL EDUCATION AND TECHNOLOGY**

- **DEPARTMENT OF INDUSTRIAL EDUCATION**
- **DEPARTMENT OF INDUSTRIAL TECHNOLOGY**



# **DIVISION OF INDUSTRIAL EDUCATION AND TECHNOLOGY**

CHARLES W. PINCKNEY, *Director*

One of the newly created divisions of the University, Industrial Education and Technology, administers training programs leading to careers in teaching industrial subjects and related professional employment in industry, commerce and government. These programs provide collegiate-level preparation for a family of careers that require a common background of knowledge and understanding of modern industrial-production operations and management.

The breadth and depth of offerings by the Division accommodate maximum flexibility in choice of career preparation permitting development of the technical background necessary to many contemporary and emerging professional employment opportunities.

The Division is organized into two departments, namely industrial education and industrial technology. These departments provide respectively teacher training and preparation for industrial-technical-management careers.

## **Admission to the Division**

The admission of students to programs offered by the Division is based upon general admission requirements of the University for collegiate-level work. Transfer students from other approved institutions, including junior colleges, may be admitted with advanced standing after having such credits earned elsewhere evaluated by our Admissions Office.

## **DEPARTMENT OF INDUSTRIAL EDUCATION**

GEORGE C. GAIL, *Acting Chairman*

This department offers two major undergraduate curricular for the preparation of industrial arts and vocational industrial education teachers, respectively. It also offers graduate curricular in these two fields leading to the Master of Science degree. A service curriculum in Driver and Safety Education leading to teacher certification in this field is provided to interested students.

## **Industrial Arts Education**

The industrial arts teacher generally works with high school students helping them to gain a better understanding of modern industry through study of its organization, personnel, management and providing experiences with typical tools, materials and processes.

College students who are interested in majoring in this area should have an active interest in industrial capabilities . . . its materials, processes and products in such typical areas as wood, metals, electricity and drafting. They should be challenged by experiences that develop technical skill and knowledge relating to labor and industrial occupations. A strong aptitude for working with adolescent youth is important to success in this field.

## INDUSTRIAL ARTS EDUCATION CURRICULUM

## Undergraduate

## Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Biological Science 1501, Physical Science 1601 .....	4	4
Mechanical Engineering 3701, 3702 .....	2	2
Mathematics 3601, 3602 .....	3	3
History 2800, 2801 .....	3	3
Industrial Education 3530 .....	—	2
Education 2100 .....	1	—
Electives or Air or Military Science .....	1	1
	<hr/> 18	<hr/> 19

## Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Industrial Arts 3520, 3521 .....	2	2
Industrial Arts 3522, 3523 .....	4	4
Industrial Arts 3526, 3527 .....	3	3
Industrial Arts 3540, 3541 .....	3	3
Industrial Education 3531 .....	—	2
Industrial Education 3550 .....	3	—
Humanities 2434, 2435 .....	3	3
Electives or Air or Military Science .....	2	2
	<hr/> 20	<hr/> 19

## Junior Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Industrial Arts 3524, 3525 .....	3	3
Industrial Arts 3524 .....	4	—
Industrial Education 3552 .....	—	2
Industrial Education 3553 .....	2	—
Industrial Education 3555 .....	—	2
Education 2154 .....	—	3
Psychology 2320 .....	3	—
Economics 2840 .....	—	3
English 2425 .....	—	2
Physical Education Elective .....	1	—
Electives .....	3	3
	<hr/> 16	<hr/> 18

## Senior Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Industrial Arts 3560 .....	2	—
Industrial Education 3566 .....	3	—
Psychology 2340 .....	3	—
Economics 2863 .....	3	—
Education 2140 .....	—	3
Education 2161 .....	—	6
Health Education 2700 .....	2	—
	<hr/> 13	<hr/> 9



**Vocational Industrial Education**

Since the vocational industrial education teacher works with high school students who are interested in training for a single occupation or occupational family, his professional preparation must reflect a concentration of study in his chosen occupational field. In addition to developing teaching competencies, these trainees must choose their concentrated teaching field from five options; namely: automotive industry, construction industry, drafting, electrical industries and metal industries.

A high interest in the trade or occupational family and in working with people is necessary for success as a teacher in this field. Two years of trade experience, beyond the learning period, is required of applicants to this teaching field in North Carolina.

**CURRICULUM****Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
**Biological Science 1501 or Chemistry 1612 ..	—	4
**Physical Science 1601 or Chemistry 1611 ...	4	—
Mechanical Engineering 3701, 3702 .....	2	2
Math. 3611, 3612 .....	4	4
History 2800, 2801 .....	3	3
Industrial Education 3530 .....	—	2
Education 2100 .....	1	—
Electives or Air or Military Science .....	1	1
	<hr/> 19	<hr/> 20

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
*Technical Electives .....	6	6
Industrial Education 3531 .....	—	2
Industrial Education 3550 .....	3	—
Physics 3825, 3826 .....	4	4
Humanities 2434, 2435 .....	3	3
Electives or Air or Military Science .....	2	2
	<hr/> 18	<hr/> 17

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
*Technical Electives .....	6	4
Industrial Education 3552 .....	—	2
Industrial Education 3553 .....	2	—
Industrial Education 3555 .....	—	2
Education 2154 .....	—	3
Psychology 2320 .....	3	—
Economics 2840 .....	—	3
English 2425 .....	—	2
Physical Education Elective .....	1	—
Health Education 2700 .....	2	—
Electives .....	3	3
	<hr/> 17	<hr/> 19

\*Technical Electives: These credits are to be selected from the list of courses shown under "Technical Option".

\*\* Choose one of these science sequences after consulting with advisor.

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
*Technical Electives .....	4	—
Industrial Education 3566 .....	3	—
Psychology 2340 .....	3	—
Economics 2863 .....	3	—
Education 2140 .....	—	3
Education 2161 .....	—	6
	<hr/> 13	<hr/> 9

**TECHNICAL OPTIONS:**

1. AUTOMOTIVE INDUSTRIES  
IA 3526, 3540; IT 4111, 4112, 4121, 4126, 4132, 4135
2. BUILDING CONSTRUCTION  
IA 3522, 3523, IT 4320, 4340; Choose either IT 4221, 4222, 4240, or IT 4228, 4229, 4233
3. ELECTRICITY-ELECTRONICS  
IA 3540, 3541; IT 4321, 4404, 4424, 4425, 4446, 4469
4. DRAFTING  
IA 3526, 3527; IT 4301, 4320, 4321, 4340, 4341
5. METAL INDUSTRIES  
IA 3524, 3525, 3540; IT 4301, 4341, 4521, 4522, 4540, 4541, 4560

**DEPARTMENT OF INDUSTRIAL TECHNOLOGY**

ANDREW W. WILLIAMS, *Acting Chairman*

The department offers one baccalaureate degree program with four options in major technology areas. The Bachelor of Science in Industrial Technology embodies a curriculum to select and prepare technologists for specialization and professional responsibilities in the technical-management phase of industry. The principal curriculum areas of the degree are as follows:

1. Major Technology (Option)
2. Physical Science
3. Business Management
4. General Education

The major technology option is chosen from building construction, electronics, engine power or mechanical and prepares the student for specialization in the chosen field of industry. A good foundation in the physical sciences and mathematics establishes a base upon which continued study and educational advancement may be built. Study in the area of business management affords the students opportunities for advancement in the managerial and supervisory concomitants of his chosen technical option. The general education requirements aid the student in the cultural and social maturity providing a basis for understanding and performing his role in society.

There is currently a high demand for individuals with the type of professional preparation embodied in industrial technology programs. Graduates are engaged in such activities as: (1) product sales and service, (2) designing, testing and evaluating equipment, (3) quality control and cost estimates, (4) component plan development, (5) supporting role in research and development and (6) technical support to engineers. Graduates who are so inclined may utilize their competencies in self employment.

## INDUSTRIAL TECHNOLOGY CURRICULUM

### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3611, 3613 .....	4	4
History 2800, 2801 .....	3	3
Chemistry 1611, 1612* .....	4	4
Mechanical Engineering 3701, 3702 .....	2	2
Education 2100 .....	1	—
Industrial Technology 4501 .....	—	2
Air or Military Science or Elective .....	1	1
	<hr/> 19	<hr/> 20

### Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Industrial Arts 3522 .....	4	—
Industrial Technology 4413 .....	—	4
Drafting Electives .....	3	3
Industrial Technology 4502 .....	2	—
Physics 3825, 3826 .....	4	4
Humanities 2434, 2435 .....	3	3
Air or Military Science or Elective .....	2	2
	<hr/> 18	<hr/> 16

### Junior Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mathematics 3641 .....	3	—
Industrial Education 3550 .....	—	3
English 2425 .....	—	2
Business or Economics Electives .....	—	3
Industrial Technology 4402 .....	4	—
Technical Electives .....	4	4
Electives .....	3	3
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\* For selected technical option majors, Phy. Sc. 1601 and Biol. Sc. 1501 may be substituted for the chemistry sequence.

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Industrial Education 3552 .....	2	—
Mechanical Engineering 3739 .....	—	2
Psychology 2320, 2362 .....	3	3
Business or Economics Elective .....	3	3
Health Education 2700 .....	2	—
Industrial Technology 4242 .....	2	—
Industrial Arts 3565 .....	—	2
Technical Electives .....	4	4
	<hr/> 16	<hr/> 14

**COURSES FROM WHICH TECHNICAL OPTIONS MAY BE CHOSEN****BUILDING CONSTRUCTION**

- IT 4221 Construction Methods I
- IT 4224 Estimating II
- IT 4225 Estimating II
- IT 4227 Problems of Construction
- IT 4230 Mechanical Equipment for Buildings
- IT 4233 Construction Supervision
- IT 4234 Building Construction & Allied Fields
- IT 4241 Advanced Building Methods
- IT 4242 Mechanics of Materials
- IT 4561 Air Conditioning & Refrigeration Principles

**ELECTRONICS**

- IT 4403 Radio and Electronic Circuits
- IT 4404 Electronic Instruments & Measurements
- IT 4405 Semi-Conductors
- IT 4424 Amplifier Circuits I
- IT 4425 Amplifier Circuits II
- IT 4446 Communications I
- IT 4447 Communications II
- IT 4468 Electronic Controls
- IT 4469 Industrial Electronics
- IT 4561 Air Conditioning & Refrigeration Principles

**ENGINE POWER**

- IT 4113 Internal Combustion Engine & Ignition
- IT 4114 Fuel & Electrical Systems
- IT 4121 Transmission, Hydraulics & Power Train
- IT 4122 Automatic Transmissions
- IT 4132 Advanced Engine Servicing
- IT 4141 Steering Geometry

IT 4142 Shop Planning & Management

IT 4561 Air Conditioning & Refrigeration Principles

**MECHANICAL (Production & Design)**

IT 4521 Manufacturing Processes I

IT 4522 Manufacturing Processes II

IT 4540 Dimensional Metrology

IT 4541 Metal Manufacturing Techniques (Inspection & Quality Control)

IT 4560 Tool Design and Manufacturing Problems

IT 4561 Air Conditioning & Refrigeration Principles

**COURSES IN INDUSTRIAL ARTS**

**Undergraduate**

3520. Introduction to Leather Craft. Credit 2(1-3)  
(Formerly I.A. 111, 112)

Fundamentals of materials, tools and skills used in leather craft.

3521. Designing, Carving and Stamping Leather Craft. Credit 2(1-3)  
(Formerly I.A. 112, 113)

Continuation of 3520 — Advanced carving and stamping.

3522. Wood Technology. Credit 4(2-6)  
(Formerly I.A. 221, 222)

A study of the wood industries. Selection, care and use of equipment and supplies; furniture design and construction, wood finishing.

3523. Wood Technology. Credit 4(2-6)  
(Formerly I.A. 222, 223)

Furniture design, construction, finishing, and equipment maintenance.  
Prerequisite: 3522.

3524. Metal Technology. Credit 3(1-5)  
(Formerly I.A. 334, 335)

Study of metal industries; planning and design; bench and sheet metal; forging, foundry, ornamental iron, art metal, metal spinning, arc and gas welding, heat treating; metal machinery, finishing and other processes useful to metal shop teachers.

3525. Metal Technology. Credit 3(1-5)  
(Formerly I.A. 335, 336)

Advanced study of metal industries with emphasis on metal machinery. Instructional materials useful to metal teacher developed. Prerequisite: 3524.

3526. Industrial Arts Drawing. Credit 3(1-5)  
(Formerly I.A. 231, 232)

A course for acquisition of information and development of skills needed by teachers of drafting. Instruction in A.S.A. conventions, projections, revolutions, developments, lettering and pictorial representation with reference to machine, woodworking drawing, sheetmetal drawing, shading, technical sketching, production illustration and industrial arts design. Prerequisite: Mechanical Engineering 3702.

- 3527. Industrial Arts Drawing.** Credit 3(1-5)  
(Formerly I.A. 232, 233)

Continuation of I.A. 3526, including, basic elements in the planning and construction of residential buildings. Problems in floor plans, elevations, details and perspective. Study of kitchen, living room dining room, bathroom and bedroom design. Prerequisite: Industrial Arts 3526.

- 3528. Repair and Maintenance of Home Furniture.** Credit 2(1-3)  
(Formerly I.A. 330)

A course designed to help homemaking teachers meet specific problems in the improvement and care of home furniture. Instruction in simple upholstery techniques and other processes using tools and accessories for home repair. Finishing and refinishing wood. Students encouraged to make an effort to provide their own work projects.

- 3540. Electricity-Electronics.** Credit 3(1-5)  
(Formerly I.A. 326, 327)

A study of basic electricity, electronics, and related industries. Fundamental electrical and electronic principles including: atomic theory, circuits, generation, induction, conductivity, motors d.c. and a.c. current, tubes, test equipment and other information useful to teachers in school shops.

- 3541. Electricity-Electronics.** Credit 3(1-5)  
(Formerly I.A. 327, 328)

Further study of electronic principles and semi-conductors, transmitters and receivers, radio, television and other electronic devices. Prerequisite: Industrial arts 3540.

- 3542. Upholstery—Furniture Construction.** Credit 4(2-6)  
(Formerly I.A. 338, 339)

Principles and techniques of webbing, spring, stuffing, padding and covering upholstered furniture. Course includes chair frame construction, principles of woodturning, wood finishing and refinishing techniques.

- 3543. Woodturning.** Credit 2(1-3)  
(Formerly I.A. 338)

Spindle and face plate turning, re-chucking, plug chucking, finishing and polishing on wood lathes. Emphasis on methods and techniques of teaching woodturning.

- 3545. Comprehensive Shop Projects.** Credit 2(1-3)  
(Formerly I.A. 448)

General construction, repairs, maintenance work or advanced projects involving woodturning, carving, inlaying, upholstery and wood and metal finishing, metals, electricity-electronics, graphic arts.

- 3560. General Shop.** Credit 2(1-3)  
(Formerly I.A. 449)

Purpose and organization of general shops, instructional materials and procedures. Shop operating problems including personnel organization and equipment selection, project construction on a general shop basis.

#### **Advanced Undergraduate and Graduate**

- 3573. Advanced General Metals I.** Credit 3(2-2)  
(Formerly I.A. 510)

Course in metalwork for teachers of industrial arts. Emphasis will center on art metal (including plating, finishes, etc.), advanced bench metal, sheet



metal operations and machine shop. Specifications of equipment, organization of instruction sheets, special problems and materials will be covered as well as shop organization. Prerequisite: I.A. 3525 or equivalent.

**3574. Advanced General Metals II.** Credit 3(2-2)  
(Formerly I.A. 511)

Advanced course in metalwork for the industrial arts teacher or other persons who may require more specialization in one area of metalwork. With the necessary prerequisites, the student may select any area of general metals for concentration and special study. Construction of projects, special assignments, etc. will be made after the area of work is selected and after consultation with the instructor. Prerequisite: I.A. 3578.

**3575. Graphic Arts.** Credit 3(2-2)  
(Formerly I.E. 611)

Fundamentals of typography, hand composition, press operation, block printing, silk screen techniques, and other reproduction methods, and book-binding.

**3576. Plastic Craft.** Credit 3(2-2)  
(Formerly I.A. 506)

For teachers of industrial arts, arts and crafts, and those interested in plastics as a hobby. Operations in plastics analyzed and demonstrated; design, color, kinds and uses of plastics, how plastics are made and sold; vocational information. Projects suitable for class use constructed.

**3577. Handicrafts.** Credit 3(2-2)  
(Formerly I.A. 508)

Craft materials and their application to industrial arts shops; principles and techniques of crafts suitable for industrial arts craft activities; for industrial arts majors and others interested in craft experiences.

### Graduate

These courses are open only to graduate students. For descriptions of them see the bulletin of the Graduate School.

**3585. Electricity-Electronics of Industrial Arts Teachers.** Credit 3(2-2)  
(Formerly I.A. 609)

**3586. Industrial Arts and Crafts Workshop.** Credit 3(2-2)  
(Formerly I.A. 600)

**3587. Industrial Arts Problems I.** Credit 3(3-0)  
(Formerly I.A. 512)

**3588. Industrial Arts Problems II.** Credit 3(3-0)  
(Formerly I.A. 507)

**3589. Advanced Furniture Design and Construction.** Credit 3(2-2)

**3590. Comprehensive General Shop.** Credit 3(2-2)  
(Formerly I.A. 613)

**3591. Advanced Drafting Techniques.** Credit 3(2-2)  
(Formerly I.A. 614)

**3592. Construction and Use of Instructional Aids.** Credit 3(2-2)  
(Formerly I.A. 623)

**COURSES IN INDUSTRIAL EDUCATION****Undergraduate**

- 3530. Foundations of Industrial Education.** Credit 2(2-0)  
(Formerly I.E. 125)

An orientation course in industrial education. Course requirements program operation, regulation. Familiarize the student with the underlying philosophy, basic principles, and history of industrial arts and vocational education.

- 3531. Vocational Industrial Education.** Credit 2(2-0)  
(Formerly I.E. 231)

Planning, organizing, administering, supervising, evaluating and interpreting trade and industrial education programs. Special consideration given to organization and responsibilities of local state and national agencies.

- 3550. Modern Industry.** Credit 3(3-0)  
(Formerly I.E. 224)

A study of the function, organization, materials, and processes of industry, for interpretation of industry in secondary school industrial education programs.

- 3552. Shop Management.** Credit 2(2-0)  
(Formerly I.E. 447)

An analysis of general education and industrial education programs and objectives. Emphasis on planning and designing shops, equipment selection and specifications, shop management, maintenance and safety.

- 3553. Vocation Guidance.** Credit 2(2-0)  
(Formerly I.E. 332)

Principles and techniques of guidance and counseling in junior and senior high schools. With emphasis on the study of industrial occupations and guidance as it relates to industrial education classes.

- 3555. Instructional Analysis Techniques.** Credit 2(2-0)  
(Formerly I.E. 441)

Methods of analyzing occupations for the purpose of securing teaching content and determining instructional order. Trade elements analyzed for instructional content. Methods of developing elements into courses and preparation of instructional materials. Prerequisite: 3553.

- 3565. Shop Safety Education.** Credit 2(2-0)  
(Formerly I.E. 333 or 3571)

This course provides the necessary lesson units and methods of teaching school shop safety, as well as plans for developing complete shop safety education programs.

- 3566. Methods of Teaching Industrial Education.** Credit 3(3-0)  
(Formerly I.E. 443 or 3572)

Methods of presenting related information, procedures in giving demonstrations with tools and machines, testing and grading shop work, course of study construction, and lesson planning. Prerequisites: I.E. 3552, 3553, 3555.

**Observation and Student Teaching—See Education 2161.**

**Advanced Undergraduate and Graduate**

- 3579. Industrial Cooperative Programs.** Credit 3(3-0)  
(Formerly I.E. 520)

For prospective teachers of vocational education. Principles, organization and administration of industrial cooperative training programs.

- 3580. Organization of Related Study Materials.** Credit 3(3-0)  
(Formerly I.E. 521)

Principles of scheduling and planning pupil's course and work experiences, selecting and organizing related instructional materials in I.C.T. Programs. Prerequisite: I.E. 3583.

- 3581. Teaching Problems in Industrial Education.** Credit 3(3-0)  
(Formerly I.E. 502)

Problems involve objectives, curriculum content, text and reference books, teaching aids, class organization and administration, safety programs, teaching techniques and plans, remedial instructions, industry and community relations. Prerequisites: I.E. 3552, 3555.

- 3582. History and Philosophy of Industrial Education.** Credit 3(3-0)  
(Formerly I.E. 504)

Chronological and philosophical development of industrial education with special emphasis on its growth and function in American schools.

**GRADUATE**

These courses are open only to graduate students. For description of them, see the bulletin of the Graduate School.

- 3593. General Industrial Education Programs.** Credit 3(3-0)  
(Formerly I.E. 631)

- 3594. Supervision and Administration of Industrial Education.** (Formerly I.E. 604) Credit 3(3-0)

- 3595. Testing in Industrial Subjects.** (Formerly I.E. 632) Credit 3(3-0)

- 3596. Curriculum Laboratory in Industrial Education.** Credit 3(3-0)  
(Formerly I.E. 605)

- 3597. Research and Literature in Industrial Education.** Credit 3(3-0)  
(Formerly I.E. 606)

- 3598. Industrial Education Seminar.** Credit 3(3-0)  
(Formerly I.E. 612)

- 3599. Thesis Research in Industrial Education.** Credit 3 hrs.  
(Formerly I.E. 699)

**DRIVER EDUCATION**

- 4123. Driver Education and Traffic Safety.** Credit 3(2-2)  
(Formerly 314)

To train students who may wish to teach driver education in the public schools. Emphasis will be placed on the objective and scope of driver education, traffic laws, preventive maintenance, skill developing exercises and aids to teaching.

4143. Driver Ed. and Teacher Training. Credit 3(2-2)  
(Formerly 403)

This course provides the student with the necessary preparation to organize and administer the high school driver education program. Special attention will be given to methods and resources, scheduling and evaluation. Laboratory experience will be provided on the dual control automobile.

4171. Driver Education, Principles & Methods. Credit 3(2-2)  
(Formerly 512)

Students will concentrate on a study of personality factors related to unsafe driving behavior. The course will include investigation of how attitudes develop, relation of personality factors, family relations, and methods of understanding and changing the unsatisfactory attitudes. Techniques and use of the Drivo-Trainer and the automobile will be stressed.

4173. Driver Education and General Safety. Credit 3(3-0)

Designed to present facts and information concerning the cost, in money and human suffering, of accidents in home, industry, school, and transportation. Included is the establishment of knowledge and background conducive to the development of personal activities and practices which reduce accidents.

### COURSES IN INDUSTRIAL TECHNOLOGY

4111. Internal Comb. Engine & Transp. Credit 2(1-3)  
(Formerly 121, 231)

This history and development of the internal combustion engine and transportation with laboratory units, disassembly, assembly and study of fundamental component parts and function of the engine systems.

4112. Carburetion and Ignition. Credit 2(1-3)  
(Formerly 122, 124)

Principles of carburetion, composition of fuels, a study of carburetors and fuel systems, testing and adjusting carburetors and fuel pumps. The automotive electric and ignition systems. Operation, inspection and maintenance of batteries and charging system. Proper use of diagnostic equipment.

4113. Internal Combustion Engine & Ignition. Credit 4(2-6)  
(Formerly 124, 230)

Emphasis is placed on methods of using modern testing equipment, tune-up kits, motor analyzers, working principles, proper service procedures for modern engines, correct measurements and fitting, proper servicing of front end, brakes, springs, tires and rims.

4114. Fuel & Electrical Systems. Credit 4(2-6)  
(Formerly 124, 225)

Lectures, demonstrations and major servicing of diesel and gasoline fuel systems and their components. Principles and servicing the ignition, charging, lighting systems and accessories.

4121. Transmission, Hydraulics & Power Train. Credit 4(2-6)  
(Formerly 226, 228)

The principles, operation and inspection of clutches, hydraulic systems, transmissions, differential and drive lines. The hydraulic systems of automatic transmissions. Proper function, testing and servicing, scientific servicing methods.

**4122. Automatic Transmissions.** Credit 4(2-6)  
(Formerly 226, 229)

The mechanical and hydraulic principles, servicing, disassembling, assembling, replacing clutches, pumps, and seals of automatic transmissions. Diagnosing malfunctions, linkage adjustment procedures.

**4125. Auto Body Design & Construction.** Credit 4(2-6)  
(Formerly 240, 241)

The theory of body construction, shapes, parts and panels. Methods of straightening damaged panels, welding, leading, soldering, feather-edging, masking, priming, sanding, use of hand tools and shop safety.

**4126. Principles of Body Rebuilding.** Credit 4(2-6)  
(Formerly 242, 240)

Disassemble and assemble damaged panels, repairing doors, quarter panels, tops; techniques of welding and shrinking panels, replacing and repairing windshields and door glass and color matching.

**4131. Adv. Automatic Transmission Servicing.** Credit 4(2-6)  
(Formerly 227, 232)

Scientific methods of trouble shooting, analyzing, disassembling and assembling, testing, servicing, rebuilding various types of automatic transmissions.

**4132. Advanced Engine Servicing.** Credit 4(2-6)  
(Formerly 238, 232)

Major tune-up, engine rebuilding, trouble shooting and proper use of precision tools and equipment. Engine parts with accent on matching operations and tolerance.

**4135. Auto Body Painting and Finishing.** Credit 4(2-6)  
(Formerly 241, 243)

Developing of automotive finishing, procedures of spraying lacquer, synthetic enamel and acrylic paint. Color blending and proper ground coats. Garnish molding, interior and estimation.

**4136. Adv. Body Rebuilding and Finishing.** Credit 4(2-6)  
(Formerly 232, 243)

Practical rebuilding problems are emphasized. Proper methods, time, cost of materials, types of equipment and quality of work is stressed.

**4141. Steering Geometry & Brakes.** Credit 4(2-6)  
(Formerly 226, 230)

The major operation and maintenance technique of suspension systems, steering angles, steering gears, power steering, wheel alignment, brakes and brake systems.

**4142. Shop Planning and Management.** Credit 2(2-2)  
(Formerly 232)

The history and developing of shop planning, safety operation methods. Theoretical and practical experience in service management. Operation of place of business, tools and equipment, record keeping.

**4200. Fundamentals of Woodwork.** Credit 2(1-2)  
(Formerly 221, 354)

A study of the species of wood used in framing, hand tools, woodworking machines, joinery and supplies used in carpentry and cabinet making.



**4221. Construction Methods I.** Credit 4(2-6)  
(Formerly 111, 112)

Full size models of various framing sections of dwelling houses are constructed and studied, with special attention being given to building codes and zoning laws. The National Building Code is used in conjunction with textbooks covering the construction of residence foundations and framing systems. Floor framing, wall framing and estimating of materials are included.

**4222. Construction Methods II.** Credit 4(2-6)  
(Formerly 113)

Theory and practice in framing various types of roofs; sheathing, insulating and shingling.

**4223. Human Relations.** Credit 3(3-0)  
(Formerly 211)

A study of problems in the work-a-day world which will aid one in getting along with people on the job, in the community and the home. These units of work include: habits one may acquire in order to improve human relations, privileges, rights and obligations as a citizen, obtaining and holding a job, labor problems, social and commercial insurance and the use of leisure time.

**4224. Estimating I.** Credit 2(2-0)  
(Formerly 115, 335)

This course is designed to give the student a practical knowledge of all phases of building construction estimating. Included is the study of working drawings, specifications, contracts, building codes, and the general techniques of estimating.

**4225. Estimating II.** Credit 2(2-0)  
(Formerly 336)

A study of various kinds of estimates in determining the cost of materials, equipment and its uses, labor, and other items of construction cost which are pertinent to an accurate system of estimating.

**4226. Electric Wiring.** Credit 2(1-2)  
(Formerly 225)

The study of materials, methods and nomenclature used in residential and commercial wiring, including a study of national codes, layout, plans, and specifications.

**4227. Problems of Construction.** Credit 2(2-0)  
(Formerly 340)

A study of analysis of various problems in the construction industry. Consultants and experienced personnel in the building construction field are frequently called upon as guest lecturers.

**4228. Masonry Construction I.** Credit 4(2-6)  
(Formerly 331, 332)

Designed to improve the students' basic skill and knowledge of the masonry trades involved in building construction. It covers interpreting and laying out work as designed by working drawings and the erection of building structures of brick, block and other masonry units.

**4229. Masonry Construction II.** Credit 4(2-6)  
(Formerly 333)

The study and application of various types of masonry construction and the numerous methods employed in increasing job production and improving workmanship.



**4230. Mechanical Equipment of Buildings.** Credit 2(2-0)  
(Formerly 227)

The basic principles and advanced practices in the selection, installation, operation and maintenance of equipment in the general areas of water supply and sanitation heating systems & electrical materials and appliances.

**4231. Machine Woodwork I.** Credit 4(2-6)  
(Formerly 221, 222)

Deals with the use of woodworking tools and the operation and maintenance of woodworking machines. The selection and uses of various kinds of cabinet construction by hand tools and machine operations. Actual shop practice in making various types of cabinets such as kitchen cabinets, built-in wardrobes, and bookcases.

**4232. Machine Woodwork II.** Credit 4(2-6)  
(Formerly 354)

A more advanced study of machine woodwork, including advanced operations on the power saws, jointer, planer, mortiser and shaper; manufacturing methods, materials, detailing of cabinets, and quantity survey; theory and application of stains, varnish, shellac and enamel.

**4233. Construction Supervision.** Credit 4(2-6)  
(Formerly 342, 346)

Designed to increase the students' ability to initiate, manage and direct building construction projects. Emphasis is placed on residential and commercial construction, cost estimating and construction management.

**4234. Bldg. Construction & Allied Fields.** Credit 4(2-6)  
(Formerly 347)

An introductory course covering the current practices in organizing and coordinating the different phases of building construction as a business and professional service.

**4240. Exterior and Interior Trim.** Credit 4(2-6)  
(Formerly 344, 355)

Study of structural and finish materials used in architectural construction, their properties and manufacture; including, theory and practice of stair construction, and methods used in exterior and interior trim of buildings.

**4241. Advanced Building Methods.** Credit 4(2-6)  
(Formerly 338, 345)

The use of builder's level, staking out building sites, foundations, concrete form construction and complex layout of roofs of all types. Advanced blueprint reading, layout and estimating of buildings. Actual practice in building residential and commercial type buildings of light frame construction.

**4242. Mechanics of Materials.** Credit 2(2-0)  
(Formerly 341)

A study of physical properties of common materials of industry. Simple stresses, loads, yield strength, ultimate strength, and factors of safety. Applications are made in the areas of riveted and welded joints, pressure vessels, and beam design.

**4300. Drafting Techniques.** Credit 2(2-0)  
(Formerly 113)

Designed to relate students with the drafting industry. It includes history of architecture, drafting room practices and economics, current articles on methods and trends, as well as visitation to drafting departments when possible.

**4301. Machine Drafting I.** Credit 4(1-6)  
(Formerly 221)

Working drawing of machine parts, gears, cams, jigs, fixtures, threads, fasteners and springs for the production of a machine or structure.

**4320. Architectural Drafting.** Credit 4(1-6)  
(Formerly 231)

Layout methods and procedure for plans, elevations, and sections for residential and industrial structures. It will include map and topographic drawings.

**4321. Structural and Electronic Drafting.** Credit 4(1-6)  
(Formerly 222, 223)

Working drawings dealing with electronic systems, electrical wiring systems, structural steel drawings and some elements of aircraft drafting.

**4340. Architectural Drafting.** Credit 4(1-6)  
(Formerly 232, 233)

Working drawings dealing with structural details of architectural drafting. This course will include display drawing, perspective drawing, pictorial drawing, freehand sketching, water color and pencil rendering.

**4341. Machine Drafting II.** Credit 4(1-6)  
(Formerly 221, 223)

Working drawings dealing with patent office drawing, tool and die drawing, and development and intersections.

**4360. Drafting Design Principles.** Credit 4(1-6)  
(Formerly 224)

Projects that are intended to give the student an opportunity to experience the design process through direct involvement in actual design situations will be used.

**4402. Basic Electricity & Magnetism.** Credit 4(3-2)  
(Formerly 101, 120)

A general background in basic theory, such as Ohm's law, A.C., D.C., magnetism, batteries and other basic information including power relationships.

**4403. Radio and Electronic Circuits.** Credit 4(3-2)  
(Formerly 121, 122)

A solid foundation in built-in circuits required in electronics. Emphasis is placed on circuit analysis using problem-solving techniques. This course includes, oscillators, inductance, capacitance, resonance, Ohm's law, power efficiency, conductors, and Kirchoff's law.

**4404. Electronic Instruments and Measurements.** Credit 4(4-0)  
(Formerly 123, 232)

Theory, operation, design of electronic measuring instruments such as the volt-meter, V.T.V.M., signal generator, tube checker, oscilloscope, watt meter, ohmmeter, and other instruments used in industrial electronics for measurement.

**4405. Semi-Conductors.** Credit 3(3-0)  
(Formerly 236)

This course deals with general transistor theory and transistor properties. It covers semi-conductor physics, diode and transistor technology. It treats transistor application in a logical order, zener diodes breakdown, fermi levels in tunnel diodes are explained in some detail, photodiodes and photo-transistors, using light energy.

**4406. Introduction to Photography.** Credit 4(2-4)  
(Formerly 147, 148)

A course to acquaint the beginner with the operation of the various cameras, sheet and roll film development and techniques used in making good photographs. Training is given in the use of various enlargers along with methods of getting special effect in printing.

**4408. Composition and Negative Retouching.** Credit 4(2-4)  
(Formerly 149, 250)

The course is planned for the serious minded student who wishes to become more proficient in the field of photography. Much study is given to arrangement of subject matter in the picture, use of natural and artificial light. Methods of correcting prints and film by retouching and spotting.

**4421. Television Circuits.** Credit 4(2-4)  
(Formerly 204, 205)

A study of basic television circuits including both the receiver and transmitter is made. Analysis of cathode-ray tubes, sound circuits, discriminations, ratio detectors, power supplies, deflection circuits, synchronization circuits, video amplifiers and television operation is also made.

**4422. Advanced Television.** Credit 4(2-4)  
(Formerly 205, 206)

This course gives the student both theoretical and practical solutions to many special problems encountered in Radio-Television service. Component parts and each stage of the television receiver are analyzed and tested for correct operation in receiver circuits. Various test instruments are used.

**4423. Television Experimental Problems.** Credit 4(2-4)  
(Formerly 207, 209)

Experiments are performed on the various circuits in the television receiver with emphasis on techniques in solving problems peculiar to television correct operation. Analysis of monochrome and color receiver circuits is made.

**4424. Amplifier Circuits I.** Credit 2(2-0)  
(Formerly 208)

This lecture course covers the design and construction of the audio amplifier along with other audio components needed to reproduce frequencies in the audio range.

**4425. Amplifier Circuits II.** Credit 2(2-0)  
(Formerly 231)

Amplifiers other than those in the audio frequency range are studied in this course. R.F., V.H.F., U.H.F. and other special frequency amplifiers, operation and application are explained. Prerequisite: Amplifier Circuits I.

**4430. Sensitometry.** Credit 4(2-4)  
(Formerly 251, 252)

A study is made of the latest equipment and use of the various timers and meters in printing and multiple flatwork. Training will be given in the use of various types of color film, color harmony, clothing backgrounds, natural and artificial illumination.

**4446. Communications I.** Credit 2(2-0)  
(Formerly 233)

Electronic circuits used in communication are studied in this lecture course. The correct installation and maintenance of two-way radio is demonstrated in the laboratory while the basic fundamentals of all communications is studied in the lecture.

**4447. Communications II.** Credit 2(2-2)  
(Formerly 235)

This course is a continuation of 4446 and is an advanced study of methods and the operational procedure of the A.M. radio station. Prerequisite: 4446.

**4468. Electronic Control.** Credit 3(2-2)  
(Formerly 234)

This is a study of basic electronic circuits that are combined to form a complete control system. The laboratory work consists of experimental investigation using typical equipment and methods. Prerequisites: 4425 and 4447.

**4469. Industrial Electronics.** Credit 4(3-2)  
(Formerly 237)

Computers, solid state devices and theory of many of the new advances in the electronic world are covered in this course.

**4501. Intro. to Metal Mfg. Processes I.** Credit 2(1-2)  
(Formerly 111, 112)

A basic course in technical computations and problem-solving related to manufacturing processes.

**4502. Intro. to Metal Mfg. Processes II.** Credit 2(1-2)

Continuation of IT 4501 with emphasis on precision measurements and manufacturing processes.

**4505. Fundamentals of Metal Joining I.** Credit 2(1-4)  
(Formerly MT 115, 116)

Demonstrations, theory of and laboratory practice in fundamental welding, brazing and soldering.

**4506. Fundamentals of Metal Joining II.** Credit 2(1-4)  
(Formerly 116, 117)

Continuation of 4505 with emphasis on heliarc, spot welding, and the latest techniques in metal joining.

**4521. Manufacturing Processes-Production I.** Credit 4(2-6)  
(Formerly 121, 122)

Basic Manufacturing techniques with machine tools and precision measuring instruments with emphasis on the lathe, milling machine and shaper.

**4522. Mfg. Processes—Production II.** Credit 4(2-4)  
(Formerly 122, 123)

Continuation of 4521 with emphasis on the major machine tools used in industry. Prerequisite: 4521.

**4540. Dimensional Metrology.** Credit 4(2-4)

A basic course in the history of measurement, the science of measurement and the language. Modern practices emphasized.

**4541. Metal Mfg. Tech.-Prod. & Materials II.** Credit 4(2-6)  
(Formerly 225, 226)

Continuation of 4540 with advanced operations required on the major machine tools and heat treatment of various types of metals to change the physical properties. Testing and inspection techniques. Prerequisite: IT 4540.

4560. **Tool Design and Mfg. Problems.** Credit 4(2-4)  
(Formerly 226, 227)

The design of special tools, jigs and fixtures for machine tools. Techniques in the building of jigs, fixtures, etc. Prerequisite: IT 4541.

4561. **Basic Refrigeration Prin. & Equipment.** Credit 4(2-4)  
(Formerly 121, 122, 123)

A study of the basic principles of refrigeration and electricity. Typical applications of refrigeration cycles and the value of refrigeration units and refrigerants, regulations and codes.

4562. **Commercial Refrigeration.** Credit 4(2-4)  
(Formerly 124, 125, 126)

Load calculations, sizing and controls. A study of the components of refrigeration, special systems and trouble analysis.

4563. **Prin. of Air Conditioning & Systems I.** Credit 4(2-4)  
(Formerly 227, 228)

A study of fundamentals involved in the conditioning of air for comfort. Sensible and latent heat transfer, states of matter and humidity.

4564. **Prin. of Air Conditioning & Systems II.** Credit 4(2-4)  
(Formerly 228, 229)

Continuation of 4553 with emphasis on controls, heat loads and special types of systems.

## DEPARTMENT OF ADULT EDUCATION AND COMMUNITY SERVICE

### DEPARTMENT OF ADULT EDUCATION AND COMMUNITY SERVICE

B. W. HARRIS, *Director*

The Department of Adult Education and Community Service brings into focus the resources of the University to serve the needs of individuals, groups, institutions, agencies, and committees for educative, consultative and other related services.

The department is divided into *formal* and *informal* educational experiences for adults and youth groups.

#### *Formal Activities.*

The formal activities include a program of evening studies geared for those who desire to earn a bachelor's degree on a part-time student basis. Furthermore, courses are offered for both academic credit and non-academic credit for self-improvement. The Department also has a program of selected adult education courses of a non-credit category and is opened to adults without any special academic requirements.

#### *Informal Services.*

This part of the University's program makes available to the state a group of varying institutes, workshops, seminars, clinics, conferences, short-courses and special programs geared to meet the needs of business, industry, teachers and other vocational groups which fall into the range of available human resources among the faculty and other resource people.



*Adult Education Services.*

In addition to formal and informal classes, the Department renders other adult education services. It provides a clearing point for the execution of programs for business and other agencies in need of special training and re-training programs.

*Special Short Courses.*

In cooperation with the various schools and divisions of the University, the Department provides non-credit programs of studies in different areas of interest for persons who desire self-improvement in their vocational pursuits.

*Coordinated Activities.*

The Department of Adult Education and Community Service also serves the campus as a coordinating unit for special educational meetings, conferences, workshops for individuals in varying vocational pursuits and interests.

*Credit.*

Residence credit at the undergraduate level is given for on-campus evening classes.

*Admission Requirements.*

Students who desire to enter the Evening Program for academic credit are required to meet the same entrance requirements as regularly enrolled college students.



# SCHOOL OF ENGINEERING



CHERRY HALL—Engineering



# **SCHOOL OF ENGINEERING**

REGINALD AMORY, *Dean*

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The School of Engineering offers a wide variety of programs designed to provide vocational, scientific and cultural education to help prepare young men and women to meet the needs of mankind in industry, business and in the various technical and professional fields.

The curricula are structured to provide a solid basic educational background in science and mathematics which are essential for the study of engineering and other fields of specialization.

The School of Engineering is organized into the following departments: Architectural Engineering, Electrical Engineering, and Mechanical Engineering.

The curricula offerings include a five-year program in architectural engineering and a four-year program course for each of the other departments that lead to the Bachelor of Science degree.

## **ADMISSION TO THE SCHOOL OF ENGINEERING**

The admission requirements are generally the same as those given for entrance to the freshman class. Two units of algebra, one unit of plane geometry, and one-half unit of trigonometry are required for students electing a curriculum leading to the Bachelor of Science degree in engineering, mathematics and physics.

Students admitted with conditions in any subject will be required to remove deficiencies before they are permitted to enter the sophomore year.

## **ADVANCED STANDING**

Students who have attended a college of approved standing will be given appropriate credit for work completed there, upon the presentation of the proper certificate to the Registrar, who will determine the credits which are transferable toward the curriculum which the student wishes to follow.

## **REQUIREMENTS FOR GRADUATION**

The general requirements for graduation in any division of the School of Engineering are the same as the General Graduation Requirements. Students must elect and complete a curriculum and must earn a grade point average of 2.0 or more both overall and in his major. He must spend at least two semesters enrolled at the college and complete at least one-half of his major work at the college.

## **A COOPERATIVE PROGRAM**

A five-year cooperative program in which students may earn a major portion of their educational expenses through a work-study arrangement with industry, is available to students with satisfactory scholastic records.

After satisfactory completion of at least two semesters in the freshman year, students in engineering, mathematics or physics may alternate semesters in industry with semesters at the college until their senior year. They then remain at the college until graduation. This arrangement enables the student to receive two years of work experience and at the same time earn educational expenses.

## DEPARTMENT OF ARCHITECTURAL ENGINEERING

WILLIAM A. STREAT, JR., *Chairman*

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It is the aim of the department of architectural engineering, through its curriculum and resources, to encourage and develop those students who exhibit creative ability and the ability to grasp and use scientific principles for professional careers in the art and science of building. The program places a stronger emphasis on the building sciences and provides professional training in materials and methods of construction and the analysis and design of building structures.

The freshman and sophomore years are devoted almost entirely to a program of general education which provides background in the social and physical sciences, and mathematics, and includes an introduction to the humanities, art, and introductory courses to the study of architecture.

The general objectives of the basic courses in architectural engineering are to provide background for upper level and more professional courses. The awareness of the many factors that influence building design, and the development of a sense of proportion in graphical representation are an important part of the initial training. The basic principles of design and the elements of material selection and their proper use are stressed. It is intended to develop a sense of structure and to develop the ability to apply basic principles of engineering to the scientific analysis and design of simple structural elements, with an aim toward proficiency in solving problems by methods that are presented. It is expected that drafting techniques will improve as course work progresses and that there will be a progressive development of sensitivity in regard to the complete architectural complex from the standpoint of its design and its proposed construction.

A considerable portion of the program in the junior years is devoted to basic engineering science. From this training coupled with previous educational preparation the student is expected, in the upper level courses in the fourth and fifth years, to show creativity in design and proficiency in the analysis and design of structural systems for buildings. Simulated practical experience is provided through laboratory work during the senior year. The five year program provides an integrated learning experience with knowledge from other educational disciplines and leads to a bachelor of science degree in architectural engineering.

**Program in Architectural Engineering****Undergraduate****Freshman**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1611, 1612 .....	4	4
English 2401, 2402 .....	4	4
Mathematics 3616, 3617 .....	5	5
Social Science 2800 .....	3	—
Physics 3821 .....	—	5
Electives* .....	1	1
	—	—
	17	19

**Sophomore**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Social Science 2801 .....	3	—
Architectural Engineering 3121, 3122 .....	3	3
Physics 3822 .....	5	—
Mathematics 3645 .....	4	—
Humanities 2434 .....	—	3
Mechanical Engineering 3735 .....	—	3
Art 3220, 3221 .....	2	2
Mechanical Engineering 3720 .....	—	3
English 2425 .....	—	2
Electives .....	2	2
	—	—
	19	18

**Lower Junior**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Humanities 2435 .....	3	—
Architectural Engineering 3141, 3142 .....	4	4
Architectural Engineering 3143, 3144 .....	3	3
Architectural Engineering 3145 .....	—	3
Mechanical Engineering 3736, 3737 .....	3	3
Architectural Engineering 3748 .....	—	2
Architectural Engineering 3146, 3147 .....	2	2
Architectural Engineering 3149 .....	3	—
	—	—
	18	17

\* Freshman and Sophomore male students who are not veterans may enroll in Air or Military Science each semester of the freshman and sophomore years.

**Upper Junior**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Architectural Engineering 3151 .....	4	—
Architectural Engineering 3153 .....	2	—
Architectural Engineering 3154, 3155 .....	3	2
Architectural Engineering 3156, 3157 .....	3	3
Mechanical Engineering 3769 .....	2	—
Architectural Engineering 3158 .....	—	3
Mechanical Engineering 3741 .....	—	3
Mathematics 3641 .....	—	3
Electives .....	3	3
	—	—
	17	17

**Senior**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Architectural Engineering 3161, 3162 .....	4	4
Architectural Engineering 3163, 3164 .....	3	3
Architectural Engineering 3165 .....	—	2
Economics 2840, 2843 .....	3	3
Mechanical Engineering 3727 .....	4	—
Mechanical Engineering 3730 .....	—	2
Electives .....	3	3
	—	—
	17	17

**Semester Credit Hours**

Freshman .....	36
Sophomore .....	37
Lower Junior .....	35
Upper Junior .....	34
Senior .....	34

176 hrs.

**COURSES IN ARCHITECTURAL ENGINEERING****Undergraduate****3121. Architectural Graphics I.**  
(Formerly A. E. 201, 202)

Credit 3(0-6)

Laboratory-lecture course. A first course for architectural engineering students; orientation to architecture, the use and care of drafting instruments, line and lettering techniques, orthographic and auxiliary projections, surface intersections and development, oblique and isometric drawing. Prerequisites: Plane and Solid Geometry. (Not open to entering freshmen — open only to majors in architectural engineering.)



**3122. Architectural Graphics II.** Credit 3(0-6)  
(Formerly A. E. 202, 203)

Laboratory-lecture course. Shades and shadows, perspective drawing, study of the architectural plan, elevation and section, architectural presentation studies in pencil, pen and ink and water color. Prerequisite: Architectural Engineering 3121.

**3141. Architectural Design I.** Credit 4(0-8)  
(Formerly A. E. 301, 302)

Laboratory-lecture course. Designed to introduce the basic fundamentals of design, and as they are applied to architecture; influences on architecture, space relationships, form and visible structure. A series of problems is presented in the design of buildings having simple requirements. Prerequisite: Architectural Engineering 3122.

**3142. Architectural Design II.** Credit 4(0-8)  
(Formerly A. E. 302, 303)

Laboratory-lecture course. Presenting a series of problems in space organization and planning with the study of composition and structure. Prerequisite: Architectural Engineering 3141.

**3143. History of Architecture I.** Credit 3(3-0)  
(Formerly A. E. 304, 305)

Illustrated lecture. The early architecture and civilizations of Egypt, Western Asia, Greece, and Italy; architectural developments by the Early Christian and Byzantine builders, and a beginning study of the architecture and civilizations of the Medieval period. Prerequisites: Architectural Engineering 3122, and Humanities 2434.

**3144. History of Architecture II.** Credit 3(3-0)  
(Formerly A. E. 305, 306)

Illustrated lecture. The architecture and civilizations of the Medieval period, and the architecture and civilizations and Renaissance and of the early Americas. Prerequisite: Architectural Engineering 3143.

**3145. Graphic Statics.** Credit 3(1-4)  
(Formerly A. E. 307)

Lectures and laboratory work. Graphical analysis of forces, truss stresses, moments of inertia, centroids, shears, bending moments and deflections. Forces on masonry structures, kerns, pressures and bending theory. Applications to the design of simple structural elements. Prerequisite: Mechanical Engineering 3735.

**3146. Materials and Methods of Architectural Construction I.**  
(Formerly A. E. 309, 310) (Credit 2(2-0))

Lecture. The manufacture and use of materials for wood frame and masonry construction. The study of construction methods and the influence of building codes. Prerequisite: Architectural Engineering 3122.

**3147. Materials and Methods of Architectural Construction II.**  
(Formerly A. E. 310, 311) Credit 2(2-0)

Lecture. The manufacture and use of materials for fire resistive construction. The study of construction methods and the influence of building codes. Prerequisite: Architectural Engineering 3146.

**3148. Building Sanitation.** Credit 2(2-0)  
(Formerly A. E. 406)

Lecture-problems course. Basic Hydrostatics and Hydrodynamics. Liquid flow in pipes. Building equipment and services including water supply and

distribution, fire protection, plumbing, sanitary drainage and sewage disposal. Selection and engineering design of equipment. Prerequisite: Junior Classification.

**3149. Electrical Equipment of Buildings.** Credit 3(3-0)  
(Formerly A. E. 405)

Lecture-problems course. Characteristics of electrical distribution systems, computation of electrical power requirements for buildings, theory and design of wiring systems and lighting systems for buildings, and the selection of electrical equipment for buildings. Prerequisites: Physics 3822, Junior Classification.

**3151. Architectural Design III.** Credit 4(0-8)  
(Formerly A. E. 401, 402)

Laboratory-lecture course presenting a series of problems for study of space analysis, space organization, form and function. Integration of design and construction methods and the organization of structural components. Prerequisite: Architectural Engineering 3142.

**3152. Architectural Design IV.** Credit 4(0-8)  
(Formerly A. E. 402, 403)

Laboratory-lecture course presenting a series of problems in the design, analysis, and organization of buildings. Economic and social considerations are given to problems. Group planning, mass and orientation are studied for more complex building requirements. More detailed study and presentation is required to emphasize the complete architectural complex. Prerequisite: Architectural Engineering 3151.

**3153. History of Architecture III.** Credit 2(2-0)  
(Formerly A. E. 404)

Illustrated lecture. An analytical study of Modern and Contemporary Architecture. Prerequisite: Architectural Engineering 3144.

**3154. Reinforced Concrete Theory I.** Credit 3(3-0)  
(Formerly A. E. 407)

Lecture-problems course. Reinforced concrete theory as applied to building structures. Theory of design for beams, slabs and columns. Allowable stress and ultimate strength concepts. Bending of reinforced concrete columns. Prerequisites: Architectural Engineering 3145, Mechanical Engineering 3736.

**3155. Reinforced Concrete Theory II.** Credit 2(2-0)  
(Formerly A. E. 408)

Lecture-problems course. Footings and retaining walls, theory of design for continuous reinforced concrete beams and slabs. Prerequisite: Architectural Engineering 3154.

**3156. Theory of Structures I.** Credit 3(3-0)  
(Formerly A. E. 409, 410)

Lecture-problems course. The elastic theory, bending in unsymmetrical sections. Mohr's circle of inertia, and the analysis and design of steel trusses. Introduction to statically indeterminate structures with analysis by methods of consistent deformation, moment areas, and slope deflection. Prerequisites: Architectural Engineering 3145, Mechanical Engineering 3736.

**3157. Theory of Structures II.** Credit 3(3-0)  
(Formerly A. E. 410, 411)

Lecture-Problems course. Reciprocal deflections and rotations. Williot-Mohr analysis, Castigliano's theorems, and methods of analysis by moment distribution. Plastic design for structural steel. Prerequisite: Architectural Engineering 3156.

- 3158. **Production Drawings.** Credit 3(0-6)  
Laboratory Course: Preparation of architectural working drawings and details for buildings. Prerequisites: Architectural Engineering 3142, 3147.
3161. **Structures I.** Credit 4(2-4)  
Lecture and Laboratory: The design of statically determinate structural components and systems in timber and steel. Prerequisite: Architectural Engineering 3156.
3162. **Structures II.** Credit 4(2-4)  
Lecture and Laboratory: The complete analysis and design of statically determinate steel frames for buildings. Three hinged arches, portal frames and bents. Prerequisite: Architectural Engineering 3161.
3163. **Statically Indeterminate Structures.** Credit 3(2-2)  
Lecture and Laboratory: The complete analysis and design of statically indeterminate structural systems. Rigid frames of steel and concrete. Continuous beams and girders. Prerequisites: Architectural Engineering 3155, 3157.
3164. **Foundation and Soil Structures.** Credit 3(1-4)  
Origin and composition of soils, soil structure. Flow of water through soils, capillary and osmotic phenomena. Soil behavior under stress; compressibility; shear strength. Elements of mechanics of soil masses with application to problems of bearing capacity of foundations, earth pressure on retaining walls, and stability of slopes, laboratory included.
3165. **Professional Practice.** Credit 2(2-0)  
(Formerly A. E. 507)  
Lecture. Procedures of professional practice, registration, ethics, professional services, contracts, bonds, liens, insurances, bidding procedures, supervision, and administration of construction operations, office management and accounting. Prerequisite: Upper Junior Classification. For majors in architectural engineering only.

## DEPARTMENT OF ELECTRICAL ENGINEERING

ARMAND RICHARDSON, *Chairman*

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The courses offered in the Department of Electrical Engineering are designed to serve the following purposes:

1. To provide understanding of and comprehensive training in the important natural laws and concepts in the physical and engineering sciences.
2. To encourage the student to look for ways of correlating and integrating fundamental knowledge; to think clearly and logically; and to learn to apply his knowledge to new situations.
3. To develop skills in the proper methods of communication of ideas through use of language; to develop ability to portray ideas in drawings and sketches; and to develop facility in the use of mathematics.
4. To develop skills in the analysis and synthesis of electrical and electronic systems and to encourage originality and creative ability wherever possible.

5. To extend classroom work with laboratory experiences designed to confirm theoretical concepts, develop facility in the use of measuring instruments; develop the ability to work effectively in a group as both a leader and a member in accomplishing specific engineering objectives, and provide additional facility in the use of the language of engineering.
6. To encourage the student to appreciate life-long learning, with the completion of undergraduate study as just one step in the process of continuous education.
7. To prepare the graduate engineer to be a respected citizen in his community and to have an appreciation for such values as those termed social, artistic, and economic, which will help him become a worthy member of the profession.

The program suggested in the curriculum averages about 18½ hours per semester, and some students complete their courses in eight semesters. However, the average time spent by students in the program is four and one-half years, and a five-year program would be desirable for those students who work or who would like to select more technical electives than the curriculum requires.

## ELECTRICAL ENGINEERING CURRICULUM

### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Chemistry 1611, 1612 .....	4	4
† Mathematics 3616, 3617 .....	5	5
Social Science 2800 .....	3	—
Physics 3821 .....	—	5
Mechanical Engineering 3701 .....	2	—
ROTC or Electives .....	1	1
	19	19

### Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Physics 3822 .....	5	—
Mathematics 3645, 3646 .....	4	4
Humanities 2434 .....	—	3
Social Science 2801 .....	3	—
Mechanical Engineering 3735, 3736 .....	3	3
Electrical Engineering 3424, 3425 .....	3	3
Electrical Engineering 3437 .....	—	4
ROTC or Electives .....	2	2
	20	19

† See Page 234 for prerequisites for Math. 3616.

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Electrical Engineering 3448, 3449 .....	4	2
Electrical Engineering 3450, 3452 .....	3	4
Mechanical Engineering 3741, 3742 .....	3	—
Mechanical Engineering 3737 .....	3	—
Economics 2840 .....	—	3
Humanities 2435 .....	3	3
**Technical Electives .....	—	3
Elective (Free) .....	3	3
	<u>19</u>	<u>18</u>

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Electrical Engineering 3460 .. 501 .....	3	—
Economics 2843 .....	—	3
Electrical Engineering 3465 .. 56.5 .....	4	—
Electrical Engineering 3470 .. 57.0 .....	4	—
*Elective Sequence .....	3	6
**Technical Electives .....	3	6
Electrical Engineering 3475, 3476 .. 57.5 57.6 .....	1	1
	<u>18</u>	<u>16</u>

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**COURSES IN ELECTRICAL ENGINEERING****Undergraduate**

- 3424. Introduction to Electrical Engineering I.** Credit 3(3-0)  
(Formerly 224, 225)

A first course for electrical engineering students. Basic field concepts underlying circuit elements; network laws and theorems and their application to resistive circuits; magnetic field concepts and effects. Prerequisites: Phy. 3821, Math. 3617.

- 3425. Introduction to Electrical Engineering II.** Credit 3(3-0)  
(Formerly 225, 226)

Magnetic field concepts and effects; inductance and the R-L circuit; electric field concepts and effects; capacitance and R-L-C circuits; introduction to solid state devices; boundary layer voltages. Prerequisite: E.E. 3424.

- 3437. Electric Circuit Analysis I.** Credit 4(3-3)  
(Formerly 3447)

Differential equations of linear circuit analysis; ideal and practical network sources; solutions in time and frequency domain; circuits in the sinusoidal steady state. Coordinated laboratory work. Prerequisites: Math. 3645, E.E. 3424, or consent of instructor.

\* Elective Sequence in the Social Science-Humanities Field.

\*\* Technical Electives to be selected to make up a coordinated program satisfactory to the Electrical Engineering Department.



**3441. Basic Electrical Engineering I.**  
(Formerly 421, 422)

Electrical engineering, fundamentals and applications for non-electrical engineering students. Electric and magnetic fields; network theory and application; direct and alternating current apparatus. Coordinated laboratory work. Prerequisites: Phy. 3822, Math. 3617.

**3442. Basic Electrical Engineering II.** Credit 4(3-3)  
(Formerly 422, 423)

Electronic circuit theory and applications; control of electrical apparatus; electro-chemical processes; electronic analog and digital computer principles. Coordinated laboratory work. Prerequisite: E.E. 3441.

**3448. Electric Circuit Analysis II.** Credit 4(3-3)  
(Formerly 332, 333)

Adjustable sinusoidal circuits; circuits with magnetic coupling; poly-phase sinusoidal circuits; general techniques in circuit analysis, harmonic analysis and fourier series. Coordinated laboratory work. Prerequisite: E.E. 3447.

**3449. Electrical and Electronic Measurements.** Credit 2(1-3)  
(Formerly 334, 335)

Instruments and techniques for measuring electrical and magnetic quantities; electronic instrumentation in measurement; methods of measuring impedance, frequency, signal power, etc. Prerequisite: E.E. 3447.

**3450. Principles of Electromagnetic Fields.** Credit 3(3-0)  
(Formerly 336)

The basic postulates of electromagnetism; the integral laws of free space; the differential laws in free space; static fields; time varying fields. Prerequisite: E.E. 3425.

**3451. Analog Computer Applications.** Credit 3(2-3)

The course consists of an introduction to the analog computer; methods of programming for the solution of linear and non-linear differential equations, dynamic response of physical systems and simulation of physical systems and phenomena. Prerequisite: Math. 3645 or consent of instructor.

**3452. Electronics I.** Credit 4(3-3)  
(Formerly 344)

Electron Ballistics; thermionic, high field and photoemission as applied to vacuum tubes, semiconductors, gas-filled tubes and specialized tubes; Coordinated laboratory work. Limited application of basic principles. Prerequisites: E.E. 3447, Math. 3617.

**3460. Electrical Transients.** Credit 3(3-0)  
(Formerly 434)

Transient and steady state solutions of electrical networks and electro-mechanical systems using the Laplace Transform, fourier integrals and the analog computer. Prerequisite: E.E. 3448 or consent of instructor.

**3461. Fundamentals of Logic Systems.** Credit 3(3-0)  
(Formerly E.E. 3462)

The course provides an introduction to logic circuits, memory circuits, switching logic, minimizing methods, coding methods, the application of electronic devices to switching circuits and the design of computer control circuits. Prerequisites: E.E. 3447 or E.E. 3442.



3463  
— **3462. Projects in Electronic Networks and Systems.** Credit 3(1-6)  
(Formerly 445, Radio Circuits)

Special topics and laboratory work of special interest to the students in electronic networks and communications circuits; most of the work is given by the project method and emphasizes actual circuit construction. Prerequisite: E.E. 3452.

**3465. Electronics II.** Credit 4(3-3)  
(Formerly Electronic Engineering I)

A continuation of Electronics I. Principles of electronic circuits; rectifiers and filters; amplifiers; feedback and oscillatory systems. Techniques using semiconductors, vacuum tubes and gas filled tubes are employed. Coordinated laboratory work. Prerequisite: E.E. 3452.

**3466. Electronic Engineering.** Credit 4(3-3)

A study of various types of electronic circuits used in engineering practice. Wave shaping and computing circuits, photosensitive devices and circuits; control and switching circuits; modulation and demodulation circuits. Coordinated laboratory work with industrial applications and special projects. Prerequisite: E.E. 3465.

3468  
**3467. Transmission of Signals and Power.** Credit 3(3-0)  
(Formerly 451)

Generalized transmission circuits; transmission line parameters; long distance steady state transmission; transients in transmission lines; signal transmission lines; high frequency lines. Prerequisites: E.E. 3448, Math. 3645.

**3469. Automatic Control Theory.** Credit 3(3-0)  
(Formerly 452)

The automatic control problem; review of operational calculus; state and transient solutions of feedback control systems; types of servomechanisms and control systems; design principles. Prerequisite: E.E. 3452 or consent of instructor.

**3470. Electric Machinery I.** Credit 4(3-3)  
(Formerly 455, 456)

Electromechanical energy conversion principles; basic rotating machines; steady state and transient analysis of the ideal d-c machine, synchronous machine, and induction machine. Coordinated laboratory experience. Prerequisite: E.E. 3448.

**3471. Electric Machinery II.** Credit 4(3-3)  
(Formerly 456, 457)

Physical factors influencing performance of the realistic machine; single and three-phase transformers; autotransformers; D-C machine characteristics and applications; synchronous and polyphase induction machine characteristics; fractional-horsepower a-c machines. Coordinated laboratory experience. Prerequisite: E.E. 3470.

**3472. Communication Theory.** Credit 3(3-0)

A course covering fundamental principles of modulation theory which are commonly used in the design of communication systems; linear modulation systems—amplitude, double and single sideband, and vestigial sideband modulation; and nonlinear modulation system—frequency and phase. Prerequisites: Math. 3646 and E.E. 3452 or consent of instructor.

**3473. Communication Systems.**

Credit 3(3-0)

This course covers the factors affecting the performance of communication systems, such as intermodulation noise, thermal noise, bandwidth, and the design of pulse modulation systems including delta and pulse code. Communication systems using earth satellites are covered in great detail including space communication. Prerequisite: E.E. 3472.

**3474. Electromagnetic Wave Theory.**

Credit 3(3-0)

(Formerly 460, 461)

Fundamental electromagnetic concepts at ultra high frequencies and above; analysis of transmission lines and networks; Maxwell equations and their applications; wave guides and radiating systems. Prerequisite: E.E. 3450.

**✓ 3475. Electrical Engineering Seminar I.**

Credit 1(1-0)

Lectures, reports and discussions on current developments and practices in the design and application of electrical and electronic components and systems.

**✓ 3476. Electrical Engineering Seminar II.**

Credit 1(1-0)

Continuation of E.E. 3475.

## DEPARTMENT OF MECHANICAL ENGINEERING

HARDY LISTON, JR., *Chairman*

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The Mechanical Engineering Department seeks to develop its students into both professionally competent and liberally educated persons; to do this by developing a mastery of fundamental mathematical and physical laws, depth of understanding of basic engineering sciences, knowledge of materials, machines, structures and systems, techniques of analysis and synthesis in the application of this knowledge to new problems, communication skills, and an understanding sufficient for a sensitive awareness of the evolution of the social organization within which we live and of the influence of mechanical engineering on its development. Its aim is to offer a broad background upon which the graduate can build in a continuing education program through his work experience and/or in advanced study and research.

### PROGRAM FOR MECHANICAL ENGINEERING MAJOR

<i>Course and Number</i>	<b>Freshman Year</b>	
	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Chemistry 1611, 1612 .....	4	4
Mathematics 3616, 3617 .....	5	5
English 2401, 2402 .....	4	4
Mechanical Engineering 3701 .....	2	—
Social Science 2800 .....	3	—
Physics 3821 .....	—	5
Education 2100 .....	0	—
Electives (ROTC or H. Ed. or Phys. Ed.) ..	1	1
	<hr/> 19	<hr/> 19

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Social Science 2801 .....	—	3
Mathematics 3645, 3641 or 3683 .....	4	3
Physics 3822 .....	5	—
Mechanical Engineering 3720, 3731 .....	3	2
Mechanical Engineering 3735, 3736 .....	3	3
Mechanical Engineering 3726, 3737 .....	2	3
Electives (ROTC or Humanistic-Social) ....	2	5
	<hr/> 19	<hr/> 19

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
M.E. 3736 or Math. 3646 .....	3 or 4	—
Humanities 2434, 2435 .....	3	3
Economics 2840, M.E. 3743 .....	3	3
Electrical Engineering 3441, 3442 .....	4	4
Mechanical Engineering 3741, 3742 .....	3	3
Mechanical Engineering 3751 <i>361</i> .....	—	1
Mechanical Engineering 3740 .....	—	2
Electives .....	3	3
	<hr/> 19 or 20	<hr/> 19

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Mechanical Engineering 3760, 3762 .....	3	3
Mechanical Engineering 3767, 3766 .....	4	4
Mechanical Engineering 3764, 3765 .....	3	3
Mechanical Engineering 3769, 3768 .....	2	3
Mechanical Engineering 3770, 3771 .....	1	1
Electives (Humanistic-Social) .....	3	3
	<hr/> 16	<hr/> 17

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**COURSES IN MECHANICAL ENGINEERING****Undergraduate**

- ✓ 3701. Engineering Graphics. Credit 2(0-6)  
(Formerly M.E. 101)

Instrument practice; lettering; geometrical construction; projections; sections auxiliary projection; revolution; pictorial drawing; intersection and development. Drawing of fasteners, springs and gears; detail and assembly drawings; tracing and reproduction methods.

3702. Engineering Graphics. Credit 2(0-6)  
(Formerly M.E. 102)

Representation of common geometrical magnitudes with points, lines, planes, and solids; concurrent noncoplanar forces; the solution of problems; advanced intersection and development. Prerequisite: M.E. 3701.

*14*

**3720. Engineering Analysis.** Credit 3(2-2)

Use of fundamental principles of mathematics, science, and engineering in problem analysis. Prerequisite: 3613 or 3616.

**3726. Manufacturing Processes.** Credit 2(1-2)  
(Formerly M.E. 3760)

The basic processes of conversion of raw materials into producer and consumer goods. Dimensional control; cutting and forming methods; tooling; cost reduction techniques using jigs and fixtures in volume production; laboratory consisting primarily of demonstrations.

**3730. Plane Surveying.** Credit 2(1-3)  
(Formerly M.E. 220)

The methods of using the compass, transit, tape and level in making plane surveys. Lectures and field work. Elementary stadia work. Prerequisite: 3713 or Trigonometry.

**3731. Fluid Mechanics.** Credit 2(2-0)  
(Formerly M.E. 411)

Principles of static and dynamic behavior of fluids with some applications to hydraulic machinery and structures. Prerequisite: Physics 3822.

**3735. Mechanics I, Statics.** Credit 3(3-0)  
(Formerly M.E. 3745)

Analytical and graphic techniques for determining force systems acting in frames and trusses under static load; equilibrium, distributed forces, centroids, friction, moments of areas. Prerequisites: Physics 3821, Math. 3617.

**3736. Strength of Materials.** Credit 3(3-0)  
(Formerly M.E. 3746)

Shear and bending moment diagrams, stresses in beams, shafts, and columns; combined stresses, deflection in beams, fiber stresses and their distribution; tension, compression, shear and torsion. Prerequisite: M.E. 3735.

**3737. Mechanics II, Dynamics.** Credit 3(3-0)  
(Formerly M.E. 3747)

Dynamics and kinetics, rectilinear and curvilinear motion, relative velocity and acceleration, work and energy, impact, moment of momentum. Prerequisite: M.E. 3735.

**3739. Engineering Practice.** Credit 2(2-0)  
(Formerly M.E. 450)

Communication, law, human relations and professional development in the practice of engineering. Development and use of communication tools, professional understanding and contract documents. Prerequisite: Eng. 2402.

**3740. Kinematics.** Credit 2(1-2)  
(Formerly M.E. 3725)

A condensed course covering relative motions, velocities and accelerations of machine parts including linkages, cams and gears. Prerequisites: M.E. 3701, Math. 3616 or 3613.

**3741. Thermodynamics I.** Credit 3(3-0)  
(Formerly M.E. 301, 302)

A course in engineering thermodynamics including the fundamental principles of Energy Conversions, Thermometry, Specific Heats, The First and Second Laws of Thermodynamics, The Carnot Cycle, Fundamental Processes with Gases, Ideal Gases, Real Gases; Tables and Nomographs. Prerequisites: Physics 3822, Math. 3617.

**3742. Thermodynamics II.** Credit 3(3-0)  
(Formerly M.E. 302, 303)

A continuation of Thermodynamics I, including the Second and Third Laws of Thermodynamics and their applications to fundamental processes. Differential Equations, Nomographs, Cycle Processes, Equated Energy Transforms, some equipment, flow charts and to include thermodynamic systems analysis and an introduction to heat transfer. Prerequisite: M.E. 3741.

**3743. Production Management.** Credit 3(3-0)  
(Formerly Ec, 334)

Problems relating to the engineer's role as consultant on matters of investment and operations. Cost concepts, profit-volume relationships and analysis, treatment of make or buy decisions, renewal or replacement decisions, minimum cost problems, simple linear programming models. Prerequisite: Economics 2840, Math. 3621, M.E. 3725.

✓ **3750. Introduction to Nuclear Engineering.** Credit 3(3-0)  
(Formerly M.E. 319)

A survey of the engineering applications of nuclear energy. The principles and practices of isotope separation, production of plutonium, and nuclear reactor operation are studied along with the peace-time uses of products and by-products of nuclear reactors. Major engineering problems involved in each phase of the study are defined and the special methods of approach indicated. Prerequisites: Physics 3822, Math. 3617.

**3751. Mechanical Engineering Laboratory I.** Credit 1(0-3)  
(Formerly M.E. 320)

Calibrating pressure, speed, temperature and power measuring instruments; testing of fuels, lubricants, pumps, compressors, heating, ventilating; and refrigerating equipment. Corequisite: M.E. 3742.

**3760. Metallurgy.** Credit 3(2-2)  
(Formerly M.E. 3753)

The production, constitution, and properties of ferrous and nonferrous engineering metals and alloys; effects of mechanical working and heat treatment; corrosion and its prevention. Prerequisite: Chem. 1612.

**3762. Fluid Mechanics and Heat Transfer.** Credit 3(3-0)  
(Formerly M.E. 412)

Relation of heat transfer to thermodynamics; conduction of heat in steady and unsteady states; analogy between heat flow and electrical flow; heat transfer by radiation; free and forced convections; heat exchangers; mass transfer. Prerequisite M.E. 3742, M.E. 3761.

**3763. Advanced Strength of Materials.** Credit 3(3-0)  
(Formerly M.E. 420)

Statically indeterminate problems in bending-various cases; strain energy methods in bending; curved bars; beams on elastic foundation; static properties under combined stresses—theories of failure; special topics such as fatigue, impact, creep, plates and shells, inelastic phenomena. Prerequisite: M.E. 3736.

**3764. Machine Design I.** Credit 3(2-2)  
(Formerly M.E. 421, 422)

Synthesis of mechanical systems and devices. Specification of systems; region of design; synthesis of elements in the complete analysis of the assembly. Project work. Prerequisites: M.E. 3736, 3737, 3740.

✓ **3765. Machine Design II.** Credit 3(2-2)  
(Formerly M.E. 422, 423)

Continuation of Mechanical Engineering 3764. Prerequisite: M.E. 3764.



**3766. Mechanical Vibration and Control.** Credit 4(3-2)  
(Formerly M.E. 424)

Free, damped and forced vibrations. Vibration isolation mounts, dampers and absorbers. Electromechanical analogies. Control systems. Laboratory in vibration of machine elements. Instrumentation for measuring force and motion. Prerequisite: Phys. 3822; Corequisite: M.E. 3765.

**3767. Heating and Air Conditioning.** Credit 4(3-2)  
(Formerly M.E. 3767)

Principles of heating and air conditioning and their applications to the design of heating and air conditioning systems; study of principal equipment; design, layout and controls employed in various types of systems. Prerequisite: Physics 3822; M.E. 3741.

**3768. Gas Dynamics.** Credit 3(3-0)

Thermodynamics and fluid dynamics of nozzles, shocks, channel flows, and simple two-dimensional flow. Prerequisite: M.E. 3742, M.E. 3761.

**3769. Materials Testing Laboratory.** Credit 2(1-2)  
(Formerly M.E. 429)

A fundamental laboratory course including standard test procedures for tension, compression, shear, torsion, hardness, and impact. Studies on iron, steel, other alloys, wood, brick, sand, gravel, cement, and concrete. Prerequisite: M.E. 3736.

**3770. Mechanical Engineering Laboratory II.** Credit 1(0-3)  
(Formerly M.E. 431, 432)

Advanced study and tests in the areas of power plants, heating and air-conditioning, metallurgy, fluid flow, compressed air, fuels and combustion, lubricants, steam engines, turbines and internal combustion engines. Prerequisites: M.E. 3751; Corequisites: M.E. 3761, 3768, 3762.

**3771. Mechanical Engineering Laboratory III.** Credit 1(0-3)  
(Formerly M.E. 432, 433)

Continuation of Mechanical Engineering 3770. Prerequisite: M.E. 3770.

**3772. Mechanical Engineering Seminar I.** Credit 1(0-2)  
(Formerly M.E. 441, 442)

Reports and discussions on special topics in mechanical engineering and related fields. Prerequisite: Senior standing in mechanical engineering.

**3773. Mechanical Engineering Seminar II.** Credit 1(0-2)  
(Formerly M.E. 442, 443)

Continuation of Mechanical Engineering 3772. Prerequisite: Senior standing in Mechanical Engineering.

**Advanced Undergraduate and Graduate**

**3780. Theory of Elasticity.** (Formerly M.E. 510) Credit 3(3-0)

Introduction; stress, strain; stress-strain relations; energy principles; special topics. Prerequisites: M.E. 3736 or Math. 3645.

**3781. Elementary Nuclear Reactor Theory.** Credit 3(3-0)  
(Formerly M.E. 519)

A lecture course in the principles of chain reactors, slowing down of neutrons, neutron diffusion equations, space distribution of neutrons, conditions for criticality, reactor dimensions for simple geometrics, elementary group theories, and time dependent reactor behavior. Prerequisite: Math. 3645 and M.E. 3750 or consent of instructor.



# SCHOOL OF NURSING





# SCHOOL OF NURSING

JEWELLEAN MANGAROO, *Dean*

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The School of Nursing offers a program leading to the Bachelor of Science degree in Nursing; requiring four academic years and two summer sessions. It includes courses in the physical, biological, social sciences, the humanities and nursing. The last two years are largely devoted to the nursing major.

## THE PHILOSOPHY OF THE SCHOOL OF NURSING

The faculty of the School of Nursing believes that education is a continuous process which provides opportunities for the development of the person to his maximum capacity for functioning in a dynamic society. We recognize the need of the learner to have an understanding of his role in the educational process and we assume responsibility for the planning, interpretation, implementation and guidance of the educational program.

We believe that nursing is a process which involves care, cure, and coordination of the health-illness continuum. We believe that the care component is "more than taking care of" that it involves intervention and action at many levels, and a variety of functions. Caring as such comprises the basic ideologies and knowledges of many allied groups. Recognizing that nursing and other health professions are affected by the rapid expansion of knowledge and the social factors which influence change in the society and its health needs, we view our responsibility as a collaborating endeavor.

The faculty believes that the practice of professional nursing offers the individual an opportunity to make a contribution to the welfare of people. We feel that professional nursing, with its allies in health affairs, has responsibility for conserving life, promoting health and teaching the individual and his family how to attain and maintain optimal health. We believe that the person prepared to render professional nursing care, utilizes knowledge, understanding, and skills derived from the biological, philosophical, psychological, and the socio-cultural areas of study and assesses and makes judgments when giving nursing care.

## OBJECTIVES OF THE SCHOOL OF NURSING

The curriculum of the School of Nursing is planned to enable the graduate to perform, competently, as a professional nurse based on:

1. The utilization of biological, sociological, and psychological concepts as they relate to the promotion of health, and the prevention of disease and the preservation of life.
2. The ability to identify and solve nursing problems irrespective of the setting.

3. The awareness of the need to participate in activities which foster personal and professional growth.
4. The ability to function as a productive member of society.
5. An appreciation for the profession of nursing and its contribution to society.
6. Respect for the dignity and worth of man.

### SCHOOL OF NURSING

#### Program for Nursing Majors

##### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Freshman Composition I and II 2401, 2402 ..	4	4
Mathematics 3601, 3602 .....	3	3
General Zoology 1512 .....	4	—
Fundamentals of P. E. 2702, 2704 .....	1	1
General Chemistry IV and V, 1615, 1616 ....	4	4
Orientation 2100 .....	1	—
Human Anatomy 1556 .....	—	3
	<hr/> 17	<hr/> 15

##### Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>	<i>Summer Session</i>
Social Science I and II 2800, 2801 ...	3	3	—
Human Physiology 1565 .....	3	—	—
Humanities I and II 2434, 2435 .....	3	3	—
General Psychology 2320 .....	3	—	—
Principles of Sociology 2831 .....	3	—	—
Historical Survey of Nursing 6620 ...	2	—	—
General Microbiology 1524 .....	—	4	—
Foods and Nutrition 1827 .....	—	3	—
Fundamentals of Nursing 6621 .....	—	4	—
Medical-Surgical Nursing I 6622 ....	—	—	6
	<hr/> 17	<hr/> 17	<hr/> 6

##### Junior Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>	<i>Summer Session</i>
Maternal and Child Health			
Nursing I and II 6640, 6641 .....	4	4	—
Medical-Surgical Nursing II and III			
6646, 6647 .....	4	4	—
*Fundamentals of Speech 2425 .....	2	—	—
Trends and Issues in Nursing 6642 ...	2	—	—
Electives .....	3	3	—
Abnormal Psychology 2034 .....	—	3	—
Psychiatric Nursing 6644 .....	—	—	6
	<hr/> 15	<hr/> 14	<hr/> 6

\* May be taken either semester.

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
*Public Health Nursing 6660 .....	8	—
*Medical-Surgical Nursing IV 6661 .....	—	8
*Community Organization 2971 .....	3	—
Fundamentals of Research in Nursing 6662 ..	2	—
Nursing Seminar I and II 6663, 6664 .....	1	1
*Electives .....	—	6
	14	15

**COURSES IN NURSING****Undergraduate**

**6620. Historical Survey of Nursing.** Credit 2(2-0)

A general survey of the past and present status of nursing. Focuses on the major social forces which influence the practice of nursing.

**6621. Fundamentals of Nursing.** Credit 4(2-4)

The study of fundamental principles, concepts, facts, and skills essential to understand the patient as an individual and formulate a plan of care which meets his basic psychophysiologic needs; utilizes the problem solving technique. Principles of nurse-patient interaction and communication are emphasized throughout the course.

**6622. Medical-Surgical Nursing I.** Credit 6(3-12)

The study of nursing principles and theories related to the individualized care of patients with selected medical-surgical health problems. Includes the principles of nutrition, and pharmacology as they relate to the selected patient care studies.

**6640. Maternal and Child Health Nursing I.** Credit 4(2-8)

Basic concepts of maternal and child health and the nursing needs of mothers and children with emphasis on human growth and development, illness, hospitalization, childbearing, child rearing, and how these affect the individual and his family.

**6641. Maternal and Child Health Nursing II.** Credit 4(2-8)

A continuation of 6640.

**6642. Current Trends and Issues in Nursing.** Credit 2(2-0)

Current trends and issues in nursing; considers the changing practices of professional nursing, nursing education, and nursing organizations.

**6644. Psychiatric Nursing.** Credit 6(3-12)

A study of psychosocial concepts as they relate to nursing situations involving the emotionally disturbed. Emphasis is placed on communication and use of the self as a basic tool in instituting nursing care.

**6646. Medical-Surgical Nursing II.** Credit 4(2-8)

Continuation of medical-surgical nursing; study and application of nursing and related principles, theories, and concepts in the care of adult patients with selected medical-surgical problems. Considers the effects of illness and hospitalization on the various patients studied.

**6647. Medical-Surgical Nursing III.** Credit 4(2-8)

A continuation of 6646.



**6660. Public Health Nursing.**

Credit 8(4-16)

Considers development, trends, and organization of community health services. Studies principles, concepts, and the processes used in public health nursing. Applies epidemiological methods to the study of family and community health situations.

**6661. Medical-Surgical Nursing IV.**

Credit 8(4-10)

Continuation of medical-surgical nursing; emphasis is placed on the broad aspects of medical-surgical health problems, and the various factors which influence health, illness, and rehabilitation of the adult patients. Provides learning experiences for increased competency in medical-surgical nursing as a team member or team leader.

**6662. Fundamentals of Research in Nursing.**

Credit 2(2-0)

A survey of current research and studies in nursing to develop understanding and create an interest in nursing research and its influence on changes in patient care.

**6663. Nursing Seminar I.**

Credit 1(0-2)

Consideration through discussion and independent study of patient care problems. Provides opportunity for the exploration of situations and problems identified by students.

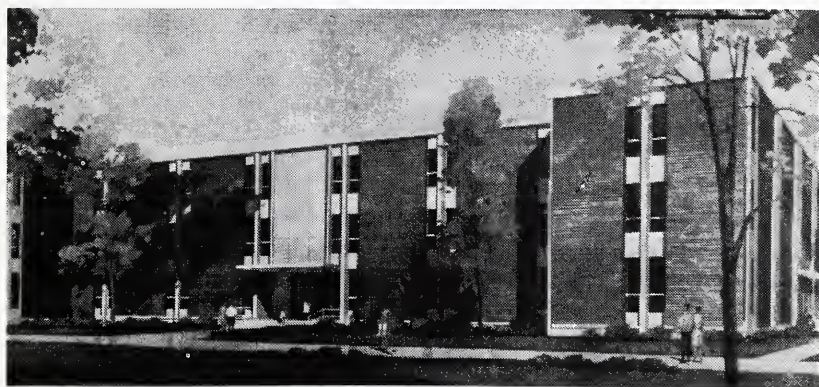
**6664. Nursing Seminar II.**

Credit 1(0-2)

A continuation of 6663.



# DIVISION OF BUSINESS ADMINISTRATION



E. R. MERRICK HALL—Business and Mathematics



# **DIVISION OF BUSINESS ADMINISTRATION**

**T. MAHAFFEY, *Director***

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## **History**

The purpose of the Division of Business Administration is to play an ever increasing role in providing professionally trained businessmen and women so urgently needed by a rapidly developing commercial and industrial state and region. Further, it is the purpose of the Division to provide its students with an adequate professional education, based primarily upon a thorough understanding of basic concepts and procedures which serve as guidelines to action in the organization and administration of the business establishment. It is also the purpose of the Division of Business Administration to provide its students with an appreciation and understanding of the problems and the interrelationships that exist in our social and economic order as a whole.

The programs leading to the baccalaureate degree are divided into three parts. Approximately 40% of the student's work must consist of courses designed to give a broad foundation in liberal or cultural education. Approximately 40% of the student's work must consist of courses in business and economics designed to give the student a comprehensive business background. Courses must be successfully completed in the seven core areas of business. Approximately 20% is designed for specialization. The major emphasis here is on theory, techniques, basic concepts and broad principles.

## **Admission Requirements of the Division of Business Administration**

Graduates of standard high schools, and other students who are able to satisfy the entrance requirements of the University, may be admitted to the Division of Business Administration.

## **Degrees Offered**

The Division of Business Administration offers the Bachelor of Science degree in the following areas: Accounting, Business Administration, Business Education, and Office Administration.

## **Degree Requirements**

The individual student is held responsible for the election of his courses in conformity with the curriculum of his choice.

A student is required to graduate under the curriculum of his choice as announced in the catalogue current when he enters the Division of Business Administration as a resident student. A student is also subject to subsequent regulations published while he is a student.

A student who enters the Division of Business Administration has the privilege of graduating under the provisions of the catalogue under which

he enters the University provided he completes his course within six years. After the interval of six years he is expected to conform to the catalogue requirements specified for the class with which he is graduated.

All candidates for the Bachelor of Science degree must take the Graduate Record Examination and/or the National Teacher Examination as a requirement for graduation.

The applicant for graduation must have earned a minimum of 124 semester hours excluding deficiency courses and remedial work with a cumulative grade point average of 2.00 or better on all courses undertaken and attain a cumulative grade point average of 2.00 or better in his major field of study.

### **Faculty Advisers**

The Division of Business Administration provides each student with a faculty adviser who assists the student in planning to meet his educational goals. The student must assume full responsibility for knowing and complying with the course requirements of his chosen curriculum. This is an important part of his training for adult responsibility.

### **Proficiency Examinations**

Students who have had some training or experience in certain fields offered in the Division of Business Administration will be given an opportunity to take an examination in such fields with the permission of the Chairman of the Department and the approval of the Director of the Division. A student who passes a proficiency examination is given credit toward graduation, provided that the course is acceptable in his curriculum. Credit is given only if a grade of "C" is made on the examination. "CR" is the grade recorded on the student's record. No official record is made of failures in these examinations.

Proficiency examinations are given under the following restrictions:

1. They may be taken only by persons who are in residence in the University.
2. They may not be taken to raise grades or remove failures in courses.
3. They may be taken only once in the same course.

## **PROGRAMS OF STUDY**

### **Department of Accounting**

MAHESH C. JAIN, *Acting Coordinator*

#### **Accounting Curriculum**

Students who successfully complete the requirements of the accounting curriculum will be prepared for accounting positions in business, industry and government. The accounting curriculum provides the basic training necessary for all fields of accounting such as cost accounting, tax service, auditing and public accounting.

**Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3611, 3613 .....	4	4
Biology 1501, Physical Science 1601 or Botany 1507, Zoology 1512 .....	4	4
Business Administration 3304 .....	—	3
Education 2100 .....	1	—
Social Science 2800, 2801 .....	3	3
Military or Air Science or Electives .....	(1)	(1)
	<hr/> 16-17	<hr/> 18-19

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Accounting 3321, 3322 .....	3	3
Humanities 2434, 2435 .....	3	3
Office Administration 3301, 3302 .....	2	2
Psychology 2320 .....	3	—
Office Administration 3334 .....	—	2
Economics 2840, 2841 .....	3	3
Physical Education .....	1	1
Health Education 2700 .....	—	2
Military or Air Science or Electives .....	(2)	(2)
	<hr/> 15-17	<hr/> 16-18

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Business Administration 3351, 3352 .....	3	3
Mathematics 3624 .....	3	—
Business Administration 3349 .....	—	3
Accounting 3341 .....	3	—
Accounting 3342 .....	—	3
Accounting 3343 .....	—	3
Business Administration 3340 .....	3	—
Business Administration 3325 .....	3	—
English 2425 .....	2	—
Business Administration 3372 .....	—	3
	<hr/> 17	<hr/> 15

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Accounting 3344 .....	3	—
Accounting 3362, 3363 .....	3	3
Business Administration 3375 .....	—	2
Business Administration 3378 .....	3	—
Business Administration 3350 .....	3	—
Business Administration 3359 .....	—	3
Accounting 3361 .....	—	3
Electives (non-business) .....	—	4
	<hr/> 12	<hr/> 15

**Major Program Requirements:**

	<i>Semester Hours</i>
Acct. 3342—Advanced Accounting .....	3
Acct. 3343—Income Tax Accounting .....	3
Acct. 3344—Cost Accounting .....	3
Acct. 3361—Auditing .....	3
Acct. 3362—Accounting Systems & Data Processing I .....	3
Acct. 3363—Accounting Systems & Data Processing II .....	3
B. A. 3349—Advanced Business Statistics .....	3
B. A. 3351—Principles of Business Law I .....	3
B. A. 3352—Principles of Business Law II .....	3
Math. 3624—Elementary Statistics .....	3
	<hr/> 30

**DEPARTMENT OF BUSINESS ADMINISTRATION****Department of Business Administration**T. MAHAFFEY, *Coordinator***Business Administration Curriculum — General Business**

Students who satisfactorily complete the requirements of the business administration (General Business) curriculum will be prepared for executive positions in business, government, and industry. They will also be prepared to establish and operate a business establishment of their own.

The program of study in this area is designed to give the student a broad perspective of the organization and operation of a modern business establishment. The students broad education and training should serve to move him into more responsible management positions.

**Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3611, 3613 .....	4	4
Biology 1501, Physical Science 1601 or Botany 1507, Zoology 1512 .....	4	4
Business Administration 3304 .....	—	3
Education 2100 .....	1	—
Social Science 2800, 2801 .....	3	3
Military or Air Science or Electives .....	(1)	(1)
	<hr/> 16-17	<hr/> 18-19

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Accounting 3321, 3322 .....	3	3
Humanities 2434, 2435 .....	3	3
Office Administration 3301, 3302 .....	2	2
Psychology 2320 .....	3	—
Office Administration 3334 .....	—	2
Economics 2840, 2841 .....	3	3
Physical Education .....	1	1
Health Education 2700 .....	—	2
Military or Air Science or Electives .....	(2)	(2)
	<hr/> 15-17	<hr/> 16-18



**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Accounting 3341 .....	3	—
Business Administration 3351, 3352 .....	3	3
Business Administration 3340 .....	3	—
Business Administration 3350 .....	—	3
Business Administration 3357 .....	—	3
Business Administration 3359 .....	—	3
Business Administration 3349 .....	—	3
Mathematics 3624 .....	3	—
Business Administration 3325 .....	3	—
English 2425 .....	—	2
	15	17

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Business Administration 3378 .....	3	—
Business Administration 3375 .....	2	—
Business Administration 3372 .....	—	3
Electives (non-business) .....	3	6
	15	14
Elective* (non-business) .....	3	6
	17	15
Electives (business)* .....	7	6
	15	15

**\*Business Electives:**

Bus Admin. 3354—Principles of Insurance  
 Bus. Admin. 3357—Principles of Real Estate  
 Bus. Admin. 3364—Seminar in Management  
 Bus. Admin. 3369—Personal Organization and Management  
 Bus. Admin. 3370—Principles of Retailing  
 Bus. Admin. 3371—Principles of Investment  
 Bus. Admin. 3379—Personal Finance  
 Bus. Admin. 3381—Government and Business  
 Bus. Admin. 3382—International Trade

**Major Program Requirements:**

	<i>Semester Hours</i>
Acct. 3341—Intermediate Accounting .....	3
B. A. 3351, 3352—Principles of Business Law .....	6
Math. 3624—Elementary Statistics .....	3
B. A. 3349—Advanced Business Statistics .....	3
B. A. 3378—Business Finance .....	3
B. A. 3325—Principles of Management .....	3
B. A. 3340—Principles of Marketing .....	3
B. A. 3359—Money, Credit and Banking .....	3
B. A. 3372—Electronic Data Processing .....	3

## DEPARTMENT OF BUSINESS EDUCATION AND OFFICE ADMINISTRATION

KATIE AVERY WHITE, *Chairman*

## COMPREHENSIVE BUSINESS EDUCATION CURRICULUM

Students have two choices in the business education curriculum. One prepares students to teach comprehensive business subjects at the secondary school level; the other prepares students to teach basic business subjects at the secondary school level. Both meet the certification requirements of the State of North Carolina. In addition, however, the student must make the established score on the National Teachers Examination to fully qualify for a Class A teaching certificate.

Students who satisfactorily complete the requirements of this curriculum will be prepared to teach comprehensive business subjects at the secondary school level. This curriculum meets the certification requirements of the State of North Carolina.

## Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3601, 3602 .....	3	3
Biology 1501, Physical Science 1601 or Botany 1507, Zoology 1512 .....	4	4
Business Administration 3304 .....	—	3
Office Administration 3301, 3302 .....	2	2
Education 2100 .....	1	—
Social Science 2800, 2801 .....	3	3
Military or Air Science or Electives .....	(1)	(1)
	<hr/> 17-18	<hr/> 19-20

## Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Accounting 3321, 3322 .....	3	3
Humanities 2434, 2435 .....	3	3
Psychology 2320 .....	—	3
Office Administration 3331, 3332 .....	3	3
Office Administration 3303 .....	2	—
Office Administration 3334 .....	2	—
Education 2120, 2121 .....	2	2
English 2425 .....	—	2
Physical Education .....	1	1
Military or Air Science or Electives .....	(2)	(2)
	<hr/> 16-18	<hr/> 17-19

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Business Administration 3351 .....	3	—
Business Administration 3325 .....	—	3
Office Administration 3347, 3348 .....	3	3
Education 2154 .....	3	—
Psychology 2341 .....	3	—
Mathematics 3615 .....	3	—
Mathematics 3624 .....	—	3
Economics 2840, 2841 .....	3	3
Health Education 2700 .....	—	2
Business Administration 3372 .....	—	3
	18	17

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Business Administration 3350 .....	(3)	3
Business Education 3376 .....	3	(3)
Education 2161 .....	6	(6)
Education 2140 .....	3	(3)
Office Administration 3373 .....	(3)	3
Office Administration 3374 .....	(2)	2
Business Administration 3340 .....	(3)	3
Business Administration 3378 .....	(3)	3
Business Administration 3379 .....	(3)	3
	12(17)	17(12)

**Major Program Requirements:**

	<i>Semester Hours</i>
B. A. 3325—Principles of Management .....	3
B. A. 3340—Principles of Marketing .....	3
B. A. 3350—Business Communications .....	3
B. A. 3378—Business Finance .....	3
B. A. 3372—Electronic Data Processing .....	3
Off. Admin. 3331, 3332—Shorthand I, II .....	6
Off. Admin. 3347, 3348—Transcription I, II .....	6
Off. Admin. 3373—Secretarial Office Procedures .....	3
	30

**BASIC BUSINESS EDUCATION CURRICULUM**

Students who satisfactorily complete the requirements of this curriculum will be prepared to teach basic business subjects at the secondary school level. This curriculum meets the certification requirements of the State of North Carolina.

**Freshman Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3601, 3602 .....	3	3
Biology 1501, Physical Science 1601 or Botany 1507, Zoology 1512 .....	4	4
Business Administration 3304 .....	—	3
Office Administration 3301, 3302 .....	2	2
Education 2100 .....	1	—
Social Science 2800, 2801 .....	3	3
Military or Air Science or Electives .....	(1)	(1)
	<hr/> 17-18	<hr/> 19-20

**Sophomore Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Accounting 3321, 3322 .....	3	3
Humanities 2434, 2435 .....	3	3
Psychology 2320 .....	—	3
Office Administration 3303 .....	2	—
Office Administration 3334 .....	—	2
Education 2120, 2121 .....	2	2
Business Administration 3325 .....	3	—
Physical Education .....	1	1
Health Education 2790 .....	2	—
Military or Air Science or Electives .....	(2)	(2)
Electives (non-business) .....	—	3
	<hr/> 16-18	<hr/> 17-19

**Junior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Accounting 3341 .....	3	—
Business Administration 3351, 3352 .....	3	3
Business Administration 3340 .....	3	—
Economics 2840, 2841 .....	3	3
Education 2154 .....	3	—
Psychology 2341 .....	—	3
Mathematics 3615 .....	—	3
Mathematics 3624 .....	—	3
English 2425 .....	2	—
Business Administration 3372 .....	—	3
	<hr/> 17	<hr/> 18

**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Business Education 3377 .....	3	(3)
Education 2161 .....	6	(6)
Education 2140 .....	3	(3)
Electives (non-business) .....	—	(3)
Office Administration 3373 .....	(3)	3
Business Administration 3350 .....	(3)	3
Business Administration 3375 .....	(2)	2
Business Administration 3378 .....	(3)	3
Business Administration 3379 .....	(3)	3
Business (non-business) .....	(3)	—
	<hr/> 12(17)	<hr/> 17(12)

**Major Program Requirements:***Semester Hours*

Acct. 3341—Intermediate Accounting .....	3
B. A. 3325—Principles of Management .....	3
B. A. 3351, 3352—Principles of Business Law I, II .....	6
Math. 3624—Elementary Statistics .....	3
B. A. 3340—Principles of Marketing .....	3
B. A. 3372—Electronic Data Processing .....	3
B. A. 3350—Business Communication .....	3
B. A. 3378—Business Finance .....	3
Off. Admin. 3373—Secretarial Office Procedures .....	3
	<hr/> 30

**Requirements for Student Teaching:**

To be eligible for Student Teaching, the student must have met the following requirements (both comprehensive business education and basic business education):

1. Have senior standing.
2. Have completed three-fourths of the number of hours required in the basic business and economics courses.
3. Have completed three-fourths of the number of hours required in his subject matter major.
4. Have attained an average of 2.00 or better on all work undertaken in the University, on all professional education courses undertaken, and on all courses undertaken in the subject matter major.
5. Possess a personality deemed necessary for successful teaching.

**OFFICE ADMINISTRATION CURRICULUM**

The demand for college trained persons to assume responsible secretarial and office positions is on the increase. Businessmen today are looking for

college trained office workers who have a broad general knowledge of business and who can perform office and secretarial services at a high level of competence.

The secretarial and office administration program of the Division of Business Administration is designed to provide for beginning, intermediate, and advanced experiences at a comprehensively professional level.

Students who satisfactorily complete the requirements of this curriculum will be prepared for secretarial positions in business, government and industry.

### Freshman Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
English 2401, 2402 .....	4	4
Mathematics 3601, 3602 .....	3	3
Biology 1501, Physical Science 1601 or Botany 1507, Zoology 1512 .....	4	4
Business Administration 3304 .....	—	3
Office Administration 3301, 3302 .....	2	2
Education 2100 .....	1	—
Social Science 2800, 2801 .....	3	3
Military or Air Science or Electives .....	(1)	(1)
	<u>17-18</u>	<u>19-20</u>

### Sophomore Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Accounting 3321, 3322 .....	3	3
Humanities 2434, 2435 .....	3	3
English 2425 .....	2	—
Psychology 2320 .....	—	3
Office Administration 3331, 3332 .....	3	3
Office Administration 3303 .....	2	—
Office Administration 3334 .....	2	—
Mathematics 3615 .....	—	3
Physical Education .....	1	1
Military or Air Science or Electives .....	(2)	(2)
	<u>16-18</u>	<u>16-18</u>

### Junior Year

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
Business Administration 3351, 3352 .....	3	3
Business Administration 3340 .....	3	—
Business Administration 3325 .....	—	3
Office Administration 3347, 3348 .....	3	3
Economics 2840, 2841 .....	3	3
Mathematics 3624 .....	—	3
Business Administration 3372 .....	3	—
	<u>15</u>	<u>15</u>



**Senior Year**

<i>Course and Number</i>	<i>Fall Semester Credit</i>	<i>Spring Semester Credit</i>
✓ Business Administration 3350 .....	3	—
Business Administration 3378 .....	3	—
Business Administration 3368 .....	3	—
Business Administration 3369 .....	—	3
Office Administration 3373 .....	3	—
Office Administration 3374 .....	—	2
Health Education 2700 .....	2	—
Electives (non-business) .....	—	7
	14	12

**Major Program Requirements:***Semester Hours*

B. A. 3368—Office Management .....	3
B. A. 3372—Electronic Data Processing .....	3
Office Admin. 3331, 3332—Gregg Shorthand I, II .....	6
Office Admin. 3347, 3348—Transcription I, II .....	6
B. A. 3325—Principles of Management .....	3
B. A. 3369—Personnel Management .....	3
B. A. 3350—Business Communication .....	3
Office Admin. 3373—Secretarial Procedures .....	3
	<hr/> 30

**COURSES OF INSTRUCTION****COURSES OF INSTRUCTION****COURSES IN ACCOUNTING****Undergraduate**

3321. Principles of Accounting I. Credit 3(3-0)  
(Formerly Accounting 201, 202)

Accounts and records peculiar to sole proprietorships, partnerships and corporations are developed. Prerequisite: Sophomore standing.

3322. Principles of Accounting II. Credit 3(3-0)  
(Formerly Accounting 202, 203)

Continuation of Accounting 3321. Prerequisite: Accounting 3321.

3341. Intermediate Accounting. Credit 3(3-0)  
(Formerly Accounting 301, 302)

Accounting principles of valuation in the preparation of the balance sheet and the income statement. Prerequisite: Accounting 3322.

3342. Advanced Accounting. Credit 3(3-0)  
(Formerly Accounting 402, 403)

Considers advanced principles of accounting as applied to problems connected with revenue, agency and branch accounts and fiduciary operations. Prerequisite: Accounting 3341.

- 3343. Income Tax Accounting.** Credit 3(3-0)  
(Formerly Accounting 303)

Special reference to federal, state and local taxes as they apply to individual taxpayers. Prerequisite: Accounting 3322.

- 3344. Cost Accounting.** Credit 3(3-0)  
(Formerly Accounting 304, 305)

Principles underlying the determination of cost with emphasis on the use of information concerning cost in the control of certain business activities. Prerequisite: Accounting 3322.

- 3361. Auditing Principles.** Credit 3(3-0)  
(Formerly Accounting 404, 405)

Emphasizes audit procedures and techniques used to verify balance sheet and income accounts. Prerequisites: Accounting 3344.

- 3362. Accounting Systems and Data Processing I.** Credit 3(3-0)

Treats the important aspects of modern accounting system with emphasis on data processing. Prerequisite: Accounting 3344.

- 3363. Accounting Systems and Data Processing II.** Credit 3(3-0)

Continuation of Accounting 3362. Prerequisite: Accounting 3362.

## **COURSES IN BUSINESS ADMINISTRATION**

### **Undergraduate**

- 3304. Introduction to Business.** Credit 3(3-0)  
(Formerly Business Administration 102)

Designed to familiarize the student with the functions and structure of business enterprise.

- 3325. Principles of Management.** Credit 3(3-0)  
(Formerly Business Administration 305)

An examination of the principles underlying the organization and management of business enterprise. Prerequisite or concurrent: Accounting 3321.

- 3340. Principles of Marketing.** Credit 3(3-0)  
(Formerly Business Administration 301)

Presentation of the fundamental principles, methods, and problems of marketing. Prerequisite or concurrent: Economics 2840.

- 3349. Advanced Business Statistics.** Credit 3(2-2)

Business data are analyzed through use of statistical inference. Probability, sampling, estimation are applied to economic and business problems. Prerequisite: Mathematics 3624.

- 3350. Business Communication.** Credit 3(3-0)  
(Formerly Business Administration 306)

Types of communication peculiar to the needs of business are studied. Prerequisite: Secretarial Science 3302.

- 3351. Principles of Business Law I.** Credit 3(3-0)  
(Formerly Business Administration 302, 303)

Designed to give practical knowledge concerning the law of contracts, agency, negotiable instruments, property, partnerships, corporations, etc. Prerequisite or concurrent: Economics 2840.

- 3352. Principles of Business Law II.** Credit 3(3-0)  
(Formerly Business Administration 303, 304)  
Continuation of Business Administration 3351. Prerequisite: Business Administration 3351.
- 3354. Principles of Insurance.** Credit 3(3-0)  
(Formerly Business Administration 308)  
Attention is given to the principal types of insurance. Prerequisite or concurrent: Economics 2840.
- 3355. Life Insurance.** Credit 3(3-0)  
(Formerly Business Administration 309)  
Examines the fundamentals of life insurance. Prerequisite: Business Administration 3354.
- 3356. Property Insurance.** Credit 3(3-0)  
(Formerly Business Administration 310)  
Studies the important types of property insurance contracts. Prerequisite: Business Administration 3354.
- 3357. Principles of Real Estate.** Credit 3(3-0)  
(Formerly Business Administration 311)  
Presents the fundamental economic aspects of real property with special attention given to the changing character of the urban economy and its effects on land values and land utilization. Prerequisite: Economics 2840.
- 3358. Principles of Advertising.** Credit 3(3-0)  
(Formerly Business Administration 312)  
Consideration is given to the use of advertising and advertising media in the sale of goods and services. Prerequisite: Business Administration 3340.
- 3359. Money, Credit, and Banking.** Credit 3(3-0)  
(Formerly Business Administration 314)  
A treatment of the principles, functions, and value of money. Emphasis is placed on the banking organization with special treatment of the Federal Reserve System. Prerequisite: Economics 2840.
- 3360. Health Insurance.** Credit 3(3-0)  
(Formerly Business Administration 405)  
Deals with the principles, problems and coverage involved in disability insurance. Prerequisite: Business Administration 3354.
- 3364. Seminar in Management.** Credit 3(3-0)  
An exploration of processes and practices of management through a seminar approach which includes an introduction to successful managers and the techniques which they use in the solution of everyday management problems. Prerequisites: Business Administration 3325. Open for credit only to Juniors and Seniors whose cumulative grade index is 2.00 or better.
- 3365. Principles of Salesmanship.** Credit 3(3-0)  
(Formerly Business Administration 403)  
The essential principles of effective selling are presented. Prerequisite: Business Administration 3340.
- 3366. Social Insurance.** Credit 3(3-0)  
(Formerly Business Administration 406)  
Treats the means of providing for economic and social security. Prerequisite: Business Administration 3354.

- 3367. Business Insurance.** Credit 3(3-0)  
(Formerly Business Administration 407)

Consideration given to the insurance program of a successful business enterprise. Prerequisite: Business Administration 3354.

- 3368. Office Organization and Management.** Credit 3(3-0)  
(Formerly Business Administration 408)

Consideration is given to the supervision and control of office procedures. Prerequisite: Business Administration 3325.

- 3369. Personnel Organization and Management.** Credit 3(3-0)  
(Formerly Business Administration 409)

Deals with the principles involved in procuring and maintaining effective and satisfied employees. Prerequisite: Business Administration 3325.

- 3370. Principles of Retailing.** Credit 3(3-0)  
(Formerly Business Administration 410)

Examines the principles and practices of retail store organization and management. Prerequisite: Business Administration 3340.

- 3371. Principles of Investment.** Credit 3(3-0)  
(Formerly Business Administration 411)

Emphasizes the nature and types of investments. Prerequisite or concurrent: Business Administration 3378.

- 3372. Electronic Data Processing for Business.** Credit 3(3-2)

Fundamentals of business data processing. The use of electronic computers and automatic machines in the area of accounting, economics, management, marketing and general business. The equipment and facilities of the Computer Science Center are utilized in the course. Three class periods and one two-hour laboratory period per week. Prerequisites: Mathematics 3624, Accounting 3341 or Accounting 3344.

- 3375. Business Administration Internship.** Credit 2(1-10)  
(Formerly Business Administration 404)

A field work program of observation and work in selected business firms. Designed to contribute materially to the total development of the student's educational experiences. Prerequisite: Senior standing.

- 3378. Business Finance.** Credit 3(3-0)  
(Formerly Business Administration 401)

Treats problems involved in the financing of business enterprise. Prerequisite: Economics 2840.

- 3379. Personal Finance.** Credit 3(3-0)  
(Formerly Business Administration 402)

Deals with the problems of money management faced by each individual as a consumer. Special attention is given to credit, borrowing and saving money, bank relationship, etc. Prerequisite: Economics 2840.

#### **For Advanced Undergraduates and Graduates**

- 3381. Government and Business.** Credit 3(3-0)

Treats governmental policies and practices affecting business. Prerequisite: Economics 2840.

- 3382. International Trade.** Credit 3(3-0)

Considers the political and economic environment underlying trade principles applicable to international business problems. Prerequisite: Business Administration 3340.

**COURSES IN BUSINESS EDUCATION****Undergraduate**

- 3376. Methods of Teaching Comprehensive Business Subjects.** Credit 3(5-0)  
(Formerly Business Education 436)

Analysis and evaluation of objectives, materials and methods of teaching typewriting, shorthand, transcription and related office skills. Provision is made for observation and participation in demonstration teaching. Prerequisite or concurrent: Education 2140, Psychology 2341.

- 3377. Methods of Teaching Basic Business Subjects.** Credit 3(5-0)  
(Formerly Business Education 437)

Selection, organization, and evaluation of supplementary teaching materials and analysis of techniques in teaching bookkeeping, general business, business law, business structure, and elementary economics. Construction of teaching units, enrichment materials and lesson plans for effective teaching on the secondary level. Prerequisite or concurrent: Education 2140, Psychology 2341.

**For Advanced Undergraduates and Graduates**

- 3386. Principles of Business Education.** Credit 3(3-0)

Designed particularly for business teachers. Treats the meaning, purpose and scope of the business education program. Prerequisite or concurrent: Business Education 3376 or 3377. Not available for undergraduate credit. For in-service teachers only.

**COURSES IN OFFICE ADMINISTRATION****Undergraduate**

- 3301. Typewriting I.** Credit 2(0-5)  
(Formerly Secretarial Science 101, 102)

Designed to develop a working knowledge of the use of the typewriter toward final mastery of keyboard reaches with drills, simple problems, and techniques of control. Requirement: 45 gwam.

- 3302. Typewriting II.** Credit 2(0-3)  
(Formerly Secretarial Science 102, 103)

Emphasis on technical typewriting, tabulation reports, and other advanced practical applications. Requirement: 60 gwam. Prerequisite: Secretarial Science 3301.

- 3303. Typewriting III.** Credit 2(0-3)  
(Formerly Secretarial Science 103, 104)

Emphasis on developing the highest possible skill in the use of the typewriter. Speed and accuracy are thoroughly emphasized through effective techniques. Speed and accuracy are thoroughly emphasized through effective techniques of control. Requirement: 60 nwam. Prerequisite: Secretarial Science 3302.

- 3331. Gregg Shorthand.** Credit 3(2-3)  
(Formerly Secretarial Science 201, 202)

Study of theory as outlined in Gregg Shorthand Diamond Jubilee Series. Requirement: 70 wam on practiced matter. Prerequisite: Secretarial Science 3302.



- 3332. Gregg Shorthand II.** Credit 3(2-3)  
(Formerly Secretarial Science 202, 203)

Emphasis is placed on difficult dictation and transcription, speed tests, and reporting speeches. Requirement: 80 wam on new matter. Prerequisite: Secretarial Science: 3302, 3331.

- 3334. Business Machines.** Credit 2(0-4)  
(Formerly Secretarial Science 204)

Designed to develop knowledge and skill in the use of equipment found in the modern office. Prerequisite: Secretarial Science 3302.

- 3347. Transcription I.** Credit 3(2-3)  
(Formerly Secretarial Science 302, 303)

Designed to review techniques of and to coordinate the skills of type-writing, shorthand, and English and to promote desirable habits of performance. Intensive development of secretarial skill through timed dictation. Requirement: The production of mailable transcripts. Prerequisite: Secretarial Science 3302, 3332.

- 3348. Transcription II.** Credit 3(2-1)  
(Formerly Secretarial Science 303, 304)

Speed building emphasis and further development of skill to take dictation and transcribe at maximum rates to satisfy the requirements of business. Requirement: The production of mailable transcripts. Prerequisite: Secretarial Science 3347.

- 3373. Secretarial Training.** Credit 3(3-0)  
(Formerly Secretarial Science 403)

Discusses the qualifications, duties and responsibilities of the secretary in the modern business office. Prerequisite: Senior standing.

- 3374. Secretarial Internship.** Credit 2(1-10)  
(Formerly Secretarial Science 404)

A field work program of observation and work in selected business firms. Designed to contribute materially to the total development of the student's educational experiences. Prerequisite: Senior standing.



# THE GRADUATE SCHOOL





# THE GRADUATE SCHOOL

DARWIN T. TURNER, *Dean*

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Graduate education at North Carolina Agricultural and Technical State University was authorized by the North Carolina State Legislature in 1939. The authorization provided for graduate training in agriculture, applied science and allied areas of study. An extension of the graduate program, approved by the General Assembly of North Carolina in 1957, provided for enlargement of the program to include teacher education, as well as such other programs of a professional or occupational nature as might be approved by the State Board of Higher Education.

## OBJECTIVES OF THE GRADUATE SCHOOL

The Graduate School of North Carolina Agricultural & Technical State University offers advanced study for qualified individuals who wish to improve their competence for careers in professions related to agriculture, applied science, education, science research, and technology. Such study of information and techniques is provided through courses of study leading to the Master of Science degree and through institutes, workshops, and individual courses designed for those who are not candidates for a higher degree but who desire advanced work in certain fields of study. Second, the Graduate School provides the foundation of knowledge and of techniques required for those who wish to continue their education in doctoral programs at other institutions. Third, the Graduate School assumes the responsibility of stimulating and encouraging scholarly research among students and faculty members.

It is expected that, in the course of their studies, graduate students (1) will have acquired special competence in at least one field of knowledge; (2) will have developed further their ability to think independently and constructively; and (3) will have developed and demonstrated the ability to collect, organize, evaluate, and report facts which will enable them to make a contribution in their field of study.

## Degrees Granted

The Graduate School of North Carolina Agricultural and Technical State University offers the Master of Science in the following fields:

1. Agricultural Education
2. Chemistry
3. Education
  - a. Administration and Supervision
  - b. Elementary Education
  - c. Guidance

d. Secondary Education—(The student may select one of the following areas for certification purposes.)

- (1) Biology
- (2) Chemistry
- (3) English
- (4) French
- (5) History
- (6) Mathematics
- (7) Science for Junior High School
- (8) Social Science

4. Foods and Nutrition
5. Industrial Arts Education

Master of Science programs in Agricultural Education, Education, and Industrial Education enable students to become eligible for the following certificates issued by the North Carolina State Department of Public Instruction:

1. Graduate Elementary Certificate
2. Graduate Secondary Certificate
3. Principal's Certificate
4. School Counselor's Certificate
5. Supervisor's Certificate

### ADMISSION TO GRADUATE STUDY

All applicants for graduate study must have earned a bachelor's degree from a four-year college. Application forms may be obtained from the office of the Graduate School and must be returned to that office with two transcripts of previous undergraduate and graduate studies. Processing of applications cannot be guaranteed unless they are received, with all supporting documents, in the Graduate Office at least fifteen days before a registration period. Applicants may be admitted to graduate studies unconditionally, provisionally, or as special students.

*Unconditional Admission.* To qualify for unconditional admission to graduate studies, an applicant must have earned an over-all average of 2.6 on a 4 point system (or 1.6 on a 3 point system) in his undergraduate studies. In addition, a student seeking a degree in Agricultural Education, Industrial Education, or Secondary Education must possess, or be qualified to possess, a Class A Teaching Certificate in the area in which he wishes to concentrate his graduate studies. A student seeking a degree with concentration in Administration and Supervision, Elementary Education, or Guidance must possess, or be qualified to possess, a Class A Teaching Certificate.

*Provisional Admission.* An applicant may be admitted to graduate studies on a provisional basis if (1) he earned his baccalaureate degree from a non-accredited institution or (2) the record of his undergraduate preparation reveals deficiencies that can be removed near the beginning of his graduate study. A student admitted provisionally may be required to pass examinations to demonstrate his knowledge in specified areas, to take specified undergraduate courses to improve his background, or

to demonstrate his competence for graduate work by earning no grades below "B" in his first nine hours of graduate work at this institution.

*Special Students.* Students not seeking a graduate degree at A. and T. State University may be admitted in order to take courses for self-improvement or for renewal of teaching certificates. If a student subsequently wishes to pursue a degree program, he must request an evaluation of his record. The Graduate School reserves the right to refuse to accept as credit for a degree program hours which the candidate earned while enrolled as a special student; in no circumstances may the student apply towards a degree program more than twelve semester hours earned as a special student.

*Admission to Candidacy for a Degree.* Admission to graduate studies does not guarantee admission to candidacy for a degree. In order to be qualified as a candidate for a degree, a student must have a minimum over-all average of 3.0 in at least nine semester hours of graduate work at the University, must have removed all deficiencies resulting from undergraduate preparation, and must have passed the Qualifying Essay. A candidate for a degree in Agricultural Education, Education, or Industrial Education must have earned a minimum score of 500 in the common and in special fields sections of the National Teachers Examination. Some departments require additional qualifying examinations. For details, see the *Graduate School Bulletin*.

*Credit Requirements.* The minimum course requirements for a graduate degree are thirty semester hours for students in thesis programs and non-thesis programs. It is expected that a student can complete a program by studying full-time for an academic year and a summer or by studying full-time during four nine-week summer sessions. A graduate student normally carries twelve to fifteen semester hours each semester of an academic year. If he is teaching full-time, he may not pursue more than six semester hours during the academic year. During the summer he may not earn more than one hour of credit for each week of residence. A student who does not complete his degree within six successive calendar years may lose credit for hours earned more than six years prior to his application for graduation.

*Other Requirements.* All students must pass a final comprehensive examination.

*Fees.* Fees for graduate students are listed in the General Information section of this catalogue.

*Financial Assistantships.* A limited number of assistantships are available. These positions may require teaching, laboratory supervision, research, or general assistance to a department or to a faculty member.

## THE GRADUATE SCHOOL BULLETIN

General requirements for the Master's degree, curricula, course descriptions, and other information about graduate study will be found in the *Graduate School Bulletin*, which may be obtained from the Graduate Office.





DEPARTMENTS OF MILITARY SCIENCE  
AND AEROSPACE STUDIES





## **DEPARTMENTS OF MILITARY SCIENCE AND AEROSPACE STUDIES**

The Reserve Officers' Training Corps (ROTC) at A&T State University consists of those students enrolled for training in the Department of Military Science or in the Department of Aerospace Studies. These Departments are integral academic and administrative subdivisions of the institution. The Senior Army Officer and the Senior Air Force Officer assigned to the University are designated as Professor of Military Science (PMS) and Professor of Aerospace Studies (PAS), respectively. These senior officers are responsible to the Department of Defense and the institutional Coordinator of Military Training for conducting the training and academic program. Army officers who are assigned to the University as instructors in the ROTC are designated Assistant Professors of Military Science; Air Force officers, as Assistant Professors of Aerospace Studies. Noncommissioned officers of the Army are assigned as assistant instructors and administrative personnel. Noncommissioned officers of the Air Force are assigned as Specialists, Technicians, and Supervisors in the areas of Administration, Education, Personnel and Supply.

The basic course in either the Army or the Air Force ROTC is elective for all physically fit male freshmen and sophomores who are not less than 14 years of age. A student who has served at least six months of active duty service with any branch of the Armed Forces may receive appropriate credit for the freshman portion of the basic ROTC course. A student with one year or more of active service in the Armed Forces may receive appropriate credit for the entire basic course. He is encouraged to participate in one of the advanced programs to earn a commission.

### **DEPARTMENT OF MILITARY SCIENCE**

LT. COLONEL WILLIAM V. GRAVES, *PMS*

LT. COLONEL WILLIAM V. GRAVES, *PMS*

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#### **OBJECTIVES**

The program of instruction, as offered by the Department of Military Science, has as its objectives the production of junior officers who have the qualities and attributes essential to their progressive and continued development as officers of the Army of the United States; the laying of a foundation for intelligent citizenship within the student; imparting a basic military knowledge of benefit to himself and to the military service in the event he becomes a member thereof, and the furtherance of the program of the college.

#### **PROGRAMS OF INSTRUCTION**

Programs of instruction for the Army ROTC include a four year program and a two year program. The four year program consists of a two

year basic course, a two year advanced course and the Advanced ROTC Summer Camp. The two year program encompasses a basic ROTC Summer Camp, a two year Advanced course and the Advanced ROTC Summer Camp. The two year program is designed primarily for students transferring from other institutions which do not offer military training.

Enrollment in the Advanced Course is contingent upon passing the ROTC qualifying examinations and selection by the Professor of Military Science. In addition students must have credit for completion of the Basic Course or must attend a Basic Summer Camp of six weeks prior to their junior year.

Any student enrolling in the Advanced Course does so for the purpose of obtaining a commission as a Regular or Reserve Officer in the Army. He must be a citizen of the United States and must be able to qualify for appointment as a second lieutenant prior to reaching 28 years of age.

### **TRANSFER CREDIT**

Students may be allowed transfer credit for military training pursued at the service academies or institutions with ROTC units. Record of a student's prior military training is obtained from the institution concerned.

### **FINANCIAL AID**

Students enrolled in the Advanced Course are paid subsistence pay at the rate of 50 dollars per month as prescribed by the Secretary of Defense for a period not to exceed 20 months.

Students attending the Basic ROTC Summer Camp are paid in the grade of Private E2. Students attending the Advanced ROTC Summer Camp are paid one-half of the basic pay of a Second Lieutenant.

Students in the basic course receive no monetary allowance except for those on scholarship.

Scholarships may be granted for periods of four years or for two years. Details on the scholarships will be published by the Department of the Army and by NC A&T State University. All students on scholarships receive \$50 a month retainer fee, and the Army pays the tuition, fees and book costs for these students.

To be eligible for scholarship a student must be in the four year program.

### **ORGANIZATION OF THE ARMY ROTC**

The Army ROTC is organized into an Army ROTC Cadet Brigade. The Cadet Brigade consists of a Cadet Brigade Headquarters, a Cadet Brigade Headquarters and Headquarters Company, and three Cadet Battalions. The Headquarters and Headquarters Company contains the Army ROTC Band, the Athletic Platoon, the Cadet Military Police and the Army ROTC Drill Team.

### **DISTINGUISHED CADETS**

The Professor of Military Science with the concurrence of the President of the University is authorized to designate outstanding cadets and Distinguished Military Students at the beginning of the senior year. These students are afforded the opportunity to apply for a commission in the Regular Army. Those students who maintain their high standing until graduation may be designated Distinguished Military Graduates at that time.

### **UNIFORMS AND EQUIPMENT**

All students enrolled in the Army ROTC unit are furnished by the Government free of cost, uniforms, equipment and textbooks. A uniform deposit of ten (\$10.00) dollars is required of all students at time of registration. The deposit will be refunded when uniforms are returned. The student is responsible for the care, safe-guarding, and cleaning of property issued to him. He is financially responsible for the loss, excessive wear, breakage due to the carelessness, or unauthorized use of clothing and equipment.

All ROTC property must be returned to the Military Property Custodian at the end of the school year or when a student withdraws from school.

### **CADET WELFARE FUND**

All Army ROTC cadets are automatically members of the Cadet Welfare Fund. A membership fee of \$4.00 is charged payable at initial registration each year.

### **SELECTIVE SERVICE AND THE ARMY ROTC**

Basic Army ROTC cadets (freshmen and sophomores) are provided draft deferments through the College Admissions Office while they are officially enrolled in college. Advanced Army ROTC cadets (juniors and seniors) are provided draft deferments by the U. S. Army while they are formally enrolled in the Advanced Army ROTC curriculum. Only those basic course students selected by the Professor of Military Science will be issued an ROTC deferment.

### **COURSES IN MILITARY SCIENCE**

#### **FALL SEMESTER**

#### **CREDIT**

\*7101. Military Science IA.

1(1-2)

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A history of the organization of the ROTC, with a study of the reasons for its continued growth. Purposes and objectives of military training, its benefits and potentialities. Organization of Infantry units with emphasis on specific duties and responsibilities of key personnel. Introduction to the evolution of firearms with particular attention to detailed construction, mechanical functioning, and proper application of marksmanship techniques.

\* An elective academic subject approved by the PMS is required at some period during the freshman, junior and senior years of all MS I, III and IV cadets.

\*\* Leadership Laboratory from 3-5 P.M. each Thursday.



**SPRING SEMESTER****CREDIT****\*7102. Military Science IB.****1(1-2)****\*\***

The discussion of the missions and responsibilities of the United States Army in National Security with emphasis on the geopolitical aspects of contemporary world history. The role of the Army in all conceivable types of war, manpower and training problems and the student's personal responsibility as a citizen and leader.

**FALL SEMESTER****CREDIT****\*7121. Military Science IIA.****2(2-2)****\*\***

A comprehensive survey of American Military History from the origin of the United States Army to the present with emphasis on the factors which led to the organizational, tactical, logistical, operational, strategical, social and similar patterns found in the present day Army. Historical emphasis of military leadership is stressed. A study of the attributes of American military leaders and their contributions to the achievement of the art of war; the growing influence of logistics as brought about by the complexities of modern warfare.

**SPRING SEMESTER****CREDIT****\*7122. Military Science IIB.****2(2-2)****\*\***

A study of the basic principles of map reading to include military grid reference systems, map projections, determination of scale, distance, direction, map coordinate systems, determination of elevation, percentage of slope, visibility and terrain analysis. An analysis of aerial photographs. Introduction to the fundamentals of small unit tactics and operations.

**FALL SEMESTER****CREDIT****\*7141. Military Science IIIA.****3(3-2)****\*\***

Instruction in responsibility, basic qualities of the leader, human behavior, and adjustment to Army life. Functions and role of the leader with special emphasis on the psychological, physiological, and sociological factors which affect human behavior. Instruction in the principles, methods and techniques which are fundamental to effective military training.

**SPRING SEMESTER****CREDIT****\*7142. Military Science IIIB.****3(3-2)****\*\***

The role of the various branches of the Army and the part that each plays in the formulation of the formidable "Army Team."

Instruction in principles and fundamentals of offensive and defensive combat and their application to the units of the Infantry Division Battalion. A review of the organization, mission, capabilities and employment of small units of the Infantry Division Battalion; and introduction to signal communications at the small unit level. A study of signal communication procedure in the Infantry Division Battalion. Orientation on the nature and purpose of ROTC summer camp training, to include sociological factors involved.

\* An elective academic subject approved by the PMS is required at some period during the freshman, junior and senior years of all MS I, III and IV cadets.

\*\* Leadership Laboratory from 3-5 P.M. each Thursday.



**FALL SEMESTER****CREDIT****\*7161. Military Science IV A.****3(3-2)****\*\***

Staff organization and function; relationship between command and staff, command channels and liaison. Principles and uses of military intelligence, the production of military intelligence, counterintelligence and intelligence training. Duties and responsibilities of company and battalion offices in training, training publications, training records, and preparation of field exercises. Familiarization with Department of the Army publications. Purpose and use of the various administrative records and reports. The fundamentals of military correspondence. Military mess arrangement, the management of unit funds and the military occupational specialty structure. Garrison supply and property accountability. Administrative and tactical troop movements and bivouacs. Motor transportation and maintenance.

**SPRING SEMESTER****CREDIT****\*7162. Military Science IVB.****3(3-2)****\*\***

The fundamentals of military justice to include court-martial procedures. The role of the United States in world affairs; an orientation on geographical and economic factors, their influence on the division of peoples into nations, and the causes of war. An orientation on service life for future officers.

## **DEPARTMENT OF AEROSPACE STUDIES**

LT. COLONEL ROBERT O. THORNTON, *Professor of Aerospace Studies*

The United States Air Force maintains a permanent Air Force Reserve Officers Training Corps at this institution for the purpose of conducting leadership training, military training, and flight training. The specific objective is to conduct a modern academic program keyed to the development of the Professional Officer. This program is offered in two divisions. The lower division for Freshmen and Sophomores is termed the General Military Course. The upper division, established as the Professional Officer Course is designed to continue the training of cadets as Juniors and Seniors, so as to provide a complete four year officer preparatory program. The entire Aerospace Studies curriculum is patterned to produce, in conjunction with the student's major, an officer who is scientifically literate and capable of thinking, speaking and acting on a broad spectrum of subjects.

### **UNIFORMS AND EQUIPMENT**

All regularly enrolled cadets of the Air Force ROTC are furnished cost free, Air Force ROTC uniforms, flying clothing, equipment and textbooks. A deposit of ten dollars (\$10.00) is required of all cadets at the time of registration as security for clothing and equipment. This fee will be refunded upon return of all items issued. Each cadet is responsible for the

\* An elective academic subject approved by the PMS is required at some period during the freshman, junior and senior years of all MS I, III and IV cadets.

\*\* Leadership Laboratory from 3-5 P.M. each Thursday.

maintenance and security of property issued to him. He is liable for the loss or abuse of this property. All property issued, must be returned at the end of the normal school year or upon withdrawal from school.

### **TRANSFER CREDIT**

Transfer credit is permitted cadets entering the Air Force ROTC, from another advanced ROTC program (Air Force, Army or Navy), at any college, university or academy.

### **FINANCIAL AID**

A retainer fee of forty dollars (\$40.00) per month is paid advanced cadets (juniors and seniors) during the entire normal academic year while a member of the Air Force ROTC.

### **STRUCTURE OF THE CADET WING**

The Air Force ROTC Cadet Wing, commanded by a Cadet Colonel, consists of three Cadet Groups, and six Cadet Squadrons. Within the structure of this Wing are such special functions as: The Air Police and the elite Arnold Air Society.

### **SPECIAL HONORS**

Outstanding performance in the Air Force ROTC Training Program, on the part of certain selected cadets can bestow on them the honor of Distinguished Cadet or Distinguished Graduate. Other honors are the Commandant's Award, the Vice-Commandant's Award, and the Air Force Times' Award.

### **CADET WELFARE FUND**

All AFROTC Cadets are members of the Cadet Welfare Fund. A membership fee of \$4.00 is charged payable at initial registration each year.

### **Air Force ROTC Officers Club**

The Cadet Officers Club provides advanced cadets with an opportunity to demonstrate organizational leadership ability and to promote social and cultural activities. Each advanced (POC) cadet is requested to become a member of the club and is obligated to pay club dues. The amount of the dues will be determined by club members each school year. (Present sum is \$15.00 annually).

### **SELECTIVE SERVICE AND THE AIR FORCE ROTC**

Basic Air Force ROTC Cadets (freshmen and sophomores) are provided draft deferments through the University Office of the Registrar while they are officially enrolled in the University. Advanced Air Force ROTC Cadets (juniors and seniors) are provided draft deferments by the Air Force while they are formally enrolled in the Advanced Air Force ROTC curriculum.

**COURSES IN AEROSPACE STUDIES****General Military Course (Basic)****AEROSPACE STUDIES (Courses for Freshmen) Credit**

**A.S. 7001. Defense of the United States I.** Credit 1(1-0)  
(Formerly A.S. 103)

An introductory course exploring the causes of present world conflict as they affect the security of the United States. This course includes analysis of democracy and communism, the U.S. power position in world affairs, the armed forces as an instrument of national policy, missions and functions of the Air, and the student's relation to U.S. world commitments. (Fall Semester).

**A.S. 7002. Leadership Lab.** Credit 0(0-2)  
(Fall Semester)

Must be taken in conjunction with A.S. 7001.

**A.S. 7003. Defense of the United States II.** Credit 1(1-0)  
(Formerly A.S. 101 and A.S. 102)

**A.S. 7004. Leadership Lab.** Credit 1(1-0)  
(Spring Semester)

Must be taken in conjunction with A.S. 7003.

**AEROSPACE STUDIES (Courses for Sophomores)**

**A.S. 7021. World Military Systems I.**  
(Formerly AFOE 203)

A comparative study of world military forces to include Free World land and naval forces, Free World air forces, Communist military systems, and trends in the development and employment of military power. (Spring Semester).

**A.S. 7022. Leadership Lab.** Credit 0(0-2)  
(Fall Semester)

Must be taken in conjunction with A.S. 7021.

**A.S. 7023. World Military Systems II.** Credit 1(1-0)  
(Formerly AFOE 201 and 202)

**A.S. 7024. Leadership Lab.** Credit 0(0-1)  
(Spring Semester)

Must be taken in conjunction with A.S. 7023.

**Professional Officer Course (Advanced)**

**A.S. 7041. Growth and Development of Aerospace Power I.** Credit 3(3-0)  
(Formerly AFOE 301 and 302)

A survey course reviewing communicative skills; the nature of war; and the development of airpower in the United States. Prerequisite: Completion of the General Military Course or the Six Week Field Training. (Fall Semester).

**A.S. 7042. Leadership Lab.** Credit 0(0-1)  
(Fall Semester)

Must be taken in conjunction with A.S. 7041.

**A.S. 7043. Growth and Development of Aerospace Power II.** Credit 3(3-0)  
(Formerly AFOE 302 and 303)

A survey course about the mission and organization of the Defense Department; Air Force concepts, doctrine, and employment; astronautics and space operations; and the future development of aerospace power. Includes the United States space programs, vehicles, systems, and problems in space exploration. Prerequisite: Completion of the General Military Course or the Six Week Field Training. (Spring Semester)

**A.S. 7044. Leadership Lab.** Credit 0(0-1)  
(Spring Semester)

Must be taken in conjunction with A.S. 7043.

**A.S. 7045. Flight Training—Basic Ground School.** Credit 3(3-0)  
(Formerly AFOE 304)

Basic academic instruction devoted to Federal Aviation Regulations, Meteorology, Navigation, Aircraft Radio Communications, Electronic Navigation, Principles of Flight and Instrument Flying. Given only in the Spring Semester.

**AEROSPACE STUDIES (Courses for Seniors)**

**A.S. 7061. The Professional Officer I.** Credit 3(3-0)  
(Formerly A.S. 401 and 402)

A study of professionalism, leadership and management. Includes the meaning of professionalism, professional responsibilities and the Military Justice System. (Fall Semester).

**A.S. 7062. Leadership Lab.** Credit 0(0-1)  
(Fall Semester)

Must be taken in conjunction with A.S. 7601.

**A.S. 7063. The Professional Officer II.** Credit 3(3-0)  
(Formerly A.S. 402 and 403)

A study of leadership theory, functions and practices; management principles and functions; problem solving; and management tools, practices and controls. (Spring Semester).

**A.S. 7064. Leadership Lab.** Credit 0(0-1)  
(Spring Semester)

Must be taken in conjunction with A.S. 7063.

**A.S. 7065. Flight Training—Advanced Ground School.** Credit 3(3-0)  
(Formerly A.S. 404)

Advanced academic instruction devoted to Federal Aviation Regulations, Meteorology, Navigation, Aircraft Radio Communications, Electronic Navigation, Principles of Flight and Instrument Flying. (Required for all Pilot Trainees). Given only in the Fall Semester.

**A.S. 7066. Flight Training-Flying.** Credit 3(3-0)  
(Formerly A.S. 405)

Flight instruction provided to teach the fundamentals of take offs, landings, stalls, steep turns, traffic patterns, air discipline, basic flight maneuvers, emergency procedures and cross-country flights. (Required for all Pilot Trainees).

\* All former course designations are as listed in the 1965-66 college bulletin.

## OFFICERS OF INSTRUCTION

## PROFESSORS

- REGINALD AMORY ..... *Civil Engineering*  
B.C.E., New York University; M.C.E., Clarkson College; Ph.D., Rensselaer Polytechnic Institute.
- RUDOLPH D. ARTIS ..... *Sociology*  
B.S., A. and T. College; M.S., Cornell University; Ed.D., *Ibid.*
- ARTHUR P. BELL ..... *Acting Chairman, Department of Agricultural Education*  
E.S., A. and T. College; M.S., Pennsylvania State University; Ed.D., *Ibid.*
- FRANK C. BELL ..... *History*  
A.B., Indiana University; M.A., Indiana University; Ph.D., *Ibid.*
- WILLIAM M. BELL ..... *Director of Athletics*
- BOTROS M. BOTROS ..... *Mechanical Engineering*  
B.Sc., Alexandria University, United Arab Republic; M.Eng'g., Sheffield University, England; Ph.D., Sheffield University, England.
- PEARL G. BRADLEY ..... *English*  
S.S., A. and T. College; A.M., University of Michigan; Ph.D., Ohio State University.
- NAITER CHOPRA ..... *Chemistry*  
B.S., University of Punjab; M.S., *Ibid.*; Ph.D., University of Dublin.
- JOHN O. CRAWFORD ..... *English*  
B.S., A. and T. College; M.S., State University of Iowa; Ph.D., University of Colorado.
- WALTER C. DANIEL ..... *Director, Division of Humanities*  
B.A., Johnson C. Smith University; South Dakota State University; Ph.D., Bowling Green State University.
- LAMYRA H. DAVIS ..... *Home Economics Education*  
A.B., Wesleyan College; M.S., University of Alabama; Ph.D., University of North Carolina—Greensboro.
- MABEL M. DILLARD ..... *English*  
B.S., Ohio University; M.A., *Ibid.*; Ph.D., *Ibid.*
- SAMUEL J. DUNN ..... *Chairman, Department of Plant Science*  
B.S., Hampton Institute; M.S., Michigan State University; Ph.D., Oregon State College.
- CECILE H. EDWARDS ..... *Chairman, Department of Home Economics*  
B.S., Tuskegee Institute; M.S., *Ibid.* Ph.D., Iowa State University.
- DONALD A. EDWARDS ..... *Chairman, Department of Physics*  
A.B., Talladega College; M.S., University of Chicago; Ph.D., University of Pittsburgh.
- GERALD A. EDWARDS ..... *Director, Division of Natural Sciences and Mathematics*  
B.S., North Carolina College; Ph.D., University of Buffalo.
- CLARA V. EVANS ..... *Home Economics*  
B.S., West Virginia State College; M.A., Columbia University.
- SIDNEY H. EVANS ..... *Acting Chairman, Department of Economics*  
B.S., Virginia State College; M.S., Iowa State University; Ph.D., Ohio State University.
- FLOYD A. FARRAR ..... *Economics*  
A.B., Fisk University; A.M., Rutgers University; Ph.D., University of Pennsylvania.
- RICHARD FIELDS ..... *Education*  
B.S., Virginia State College; M.A., New York University; Ed.D., Rutgers University.
- CHARLES A. FOUNTAIN ..... *Plant Science and Technology*  
B.S., Hampton Institute; M.S., Michigan State University; Ph.D., *Ibid.*



- ALEXANDER B. GARDNER ..... *Physics*  
B.S., A. and T. College; M.S., University of North Carolina; Ph.D., University of North Carolina.
- ALFONSO E. GORE ..... *Education*  
B.S., Bluefield State College; A.M., West Virginia University; C.A.G.S., Boston University; Ed.D., *Ibid.*
- ARTIS P. GRAVES ..... *Chairman, Department of Biology*  
B.S., Bluefield State College; M.S., University of Iowa; Ph.D., *Ibid.*
- WILLIAM GRAVES ..... *Professor of Military Science*  
B.S., A. and T. College.
- \*CHARLES L. HAYES ..... *Chairman, Department of Education*  
A.B., Leland College; M.Ed., Loyola University; Ed.D., Colorado State College.
- ALFRED HILL ..... *Biology*  
B.S., Prairie View College; M.A., Colorado A. and M. College; Ph.D., Kansas State University.
- ARTHUR F. JACKSON ..... *Dean, School of Arts and Sciences*  
B.S., Hampton Institute; M.A., Columbia University; Ed.D., *Ibid.*
- NORMAN E. JARRARD ..... *English*  
A.B., Salem College; M.A., University of North Carolina at Chapel Hill; Ph.D., University of Texas.
- SAMUEL O. JONES ..... *Education*  
B.S., Winston-Salem State College; M.A., New York University; Ed.D., University of Oklahoma.
- WADARAN L. KENNEDY ..... *Chairman, Department of Animal Industry*  
B.S., University of Illinois; M.S., *Ibid.*, Ph.D., Pennsylvania State College.
- LEWIS M. KNEBEL ..... *Sociology*  
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**BACHELOR OF SCIENCE IN CLOTHING, TEXTILES, AND RELATED ARTS**

Marilyn H. Berryman  
 Dorothy McBroom

Willie J. McKoy  
 Ann C. Sidberry

**BACHELOR OF SCIENCE IN DAIRY MANUFACTURING**

James D. Allen

**BACHELOR OF SCIENCE IN FOODS AND NUTRITION**

Wilda Dixon Wade

**BACHELOR OF SCIENCE IN HOME ECONOMICS EDUCATION**

Winifred Ivlyn Davist†  
 Joanne Jessup Falls  
 Mary G. Kennedy  
 Elizabeth Lee  
 Mary B. Lowe  
 Sandra L. Martin  
 Marcia A. Nunn

Gloria May Pantont†  
 Celia G. Pilson  
 Neater A. Pope  
 Emma M. Spruill  
 Sylvia C. Taylor-Jones\*  
 Geraldine H. Walden  
 Carolyn Yancy

**BACHELOR OF SCIENCE IN HORTICULTURE**

Willie Jay Martin

**BACHELOR OF SCIENCE IN INSTITUTION MANAGEMENT**

Jerry Lawrence Friday      Julia M. Johnson      Joyce D. Joyner

**BACHELOR OF SCIENCE IN NURSERY SCHOOL AND KINDERGARTEN EDUCATION**

Anna M. Bowling  
 Jo Ann T. Elliott

Patricia P. Moore  
 Helen Peagler

**BACHELOR OF SCIENCE IN ECONOMICS**

George Henry Byrd, Jr.  
 Albert M. Donley  
 Joyce M. Gadson  
 John M. Gundy

Dratin Hill  
 Patricia I. Morris  
 Thelma L. Robinson  
 Roy C. White

**BACHELOR OF SCIENCE IN ENGLISH**

Doane Banner†  
 Jonathan Byers  
 Billy Ray Dixon  
 Oscar C. Gatewood  
 Thomas Edward Grier  
 Roland J. Haynes  
 Evelyn Henderson

Patricia Lanier  
 DaReene T. Pazant  
 John Archie Smith  
 Susie V. Teele  
 John H. Vaughan  
 Thelma E. Walker  
 Melvin Whaley

\*Cum Laude

†Magna Cum Laude

**BACHELOR OF SCIENCE IN FRENCH**

E. Maerose Hayes

Sandra D. Spruiell

**BACHELOR OF SCIENCE IN HISTORY**

Princess Boothe  
 Carolyn N. Bowden  
 George L. Brightharp  
 Linwood E. Burney†  
 Rosetta M. Curtain

Mary E. Doggett  
 Joseph L. Johnson  
 Robert L. Parker  
 Eric R. Teel\*  
 Daisy Small Thomas

**BACHELOR OF SCIENCE IN MUSIC**

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 Robert C. Holmes

Michael T. Kenner  
 William Leon Toney

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Elizabeth D. Baxter  
 Walter C. Brower  
 Patricia M. Campbell  
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 Clairissia Hines  
 Bristol Martin, Jr.  
 Josesph R. Parker

**BACHELOR OF SCIENCE IN POLITICAL SCIENCE**

Edward Garner\*

J. Lewis Womack

**BACHELOR OF SCIENCE IN SOCIAL STUDIES**

Robert E. Diggs  
 Billiette Hamilton  
 Edna Lee Mashburn  
 Retha Morgan

Turner J. Rice  
 James M. Robinson  
 Vera U. Trent

**BACHELOR OF SCIENCE IN SOCIAL WELFARE**

Frenda K. Johnson  
 Valerie Johnson

Essie M. Simpson  
 Annie E. Smith

**BACHELOR OF SCIENCE IN SOCIOLOGY**

Jo Ann C. Alston  
 George Board  
 Virginia Clark  
 Morris E. Davis  
 Jesse Deloatch  
 Janice M. Fisher  
 Ronald E. Fisher  
 Willie Macie Hardin  
 Floyd R. Hector  
 Pettye A. Hollowell  
 Gladys M. Johnson

Helen M. Jones  
 Jacquelyn P. Jeter  
 Tommye E. McGee  
 Samuel R. Lomax  
 Charles R. Middleton  
 Annie R. Mowring  
 John R. Payne  
 Jennie Sue Poston  
 Bernard Shepard  
 Vincent L. Spencer  
 Brenda E. Whitsett

\*Cum Laude

†Magna Cum Laude

**BACHELOR OF SCIENCE IN NURSING**

Feleta L. Andrews  
 Angelyn H. Battle  
 Betty Jean Daniels  
 Adeline P. Gracey  
 Greather S. Grantham  
 Ethel Warren Hall

Delcie V. Johnson  
 Luther Mae Johnson  
 Julia Mae King  
 Mary E. Pitt  
 Marguerite E. Thompson  
 Willie Pearl Washington†

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Wendolyn Dixon  
 John Elbert Holmes  
 John R. Hines  
 Nannie Kearney†

Joseph J. Mooney  
 Jacob A. Musgrave  
 Melvin Siler

**BACHELOR OF SCIENCE IN ARCHITECTURAL ENGINEERING**

Lanard M. Geddings  
 Benard N. Johnson, Jr.  
 Judson Jones

Robert L. Middleton  
 Claude E. Miller  
 Joseph N. Okeke

**BACHELOR OF SCIENCE IN BUSINESS EDUCATION**

Alfred Brake, Jr.  
 Charles Ervin Butler  
 John E. Craig  
 Willie C. Garrett, Jr.  
 Levi Hamilton  
 Harold LeVerne Harrison  
 Saunders M. Long

Benjamin D. Murrell  
 Otto Newkirk, Jr.  
 Richard Joseph Peace  
 Lathen Bell Phillips\*  
 Randolph Sellers  
 David Solomon  
 Charlie M. Thompson

**BACHELOR OF SCIENCE IN BUSINESS EDUCATION**

Patricia Harris  
 Reatha M. Hurdle  
 Liller Sue Kirkland

Martha L. Lewis  
 Doris Jones Rayner

**BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING**

Clarence E. Davenport  
 Charlie Clifton Felton

Leonard Jasper Simon, Jr.

**BACHELOR OF SCIENCE IN ENGINEERING MATHEMATICS**

Arnie Bass  
 William M. Brown  
 Larry Tannon Hardy, Jr.

Ronald E. Skinner  
 John Andrew Smith  
 Nathaniel Speight

**BACHELOR OF SCIENCE IN ENGINEERING PHYSICS**

Marcus E. Lewis, Jr.  
 Arlene P. Maclin\*

Johnnie S. Richardson\*  
 Fred D. Taylor

**BACHELOR OF SCIENCE IN FINE ARTS**

John H. Hughley  
 Robert L. Mitchell

William Rice

---

\*Cum Laude

†Magna Cum Laude

**BACHELOR OF SCIENCE IN INDUSTRIAL ARTS EDUCATION**

Johnnie T. Bowman  
 William T. Brown, Jr.  
 Alfonso Charles  
 James Cornelius Moore

Larry L. Roberson  
 Charles Robson  
 James Edward White  
 Fred Wood

**BACHELOR OF SCIENCE IN MATHEMATICS**

Bobby R. Evans  
 Ruben N. Loundermont

Harvey James Mathis  
 Jesse C. Newton

**BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING**

Jefferson Irvin Blackburn  
 Andrew Neal

James E. Payne

**BACHELOR OF SCIENCE IN PHYSICS**

Eugene Feimster

William E. Mebane

**BACHELOR OF SCIENCE IN SECRETARIAL SCIENCE**

Flora L. Street

Yvonne Walden

**BACHELOR OF SCIENCE IN VOCATIONAL INDUSTRIAL EDUCATION**

Edward D. Mitchell

**MASTER OF SCIENCE IN AGRICULTURAL EDUCATION**

John Flegra Andrews, B.S., A. and T. College .....1958  
 Frank Cain, B.S., A. and T. College .....1957  
 Rhocus Leburn Cousins, B.S., Virginia State College .....1947  
 Moses Rosslot Kamara, B.S., A. and T. College .....1965  
 Wayman Malone McIver, B.S., A. and T. College .....1949  
 Willie Joe Walls, B.S., A. and T. College .....1950

**MASTER OF SCIENCE IN INDUSTRIAL EDUCATION**

Laban Calvin Maultsby, B.S., A. and T. College .....1950  
 Ethan Clay Sherrod, B.S., A. and T. College .....1958  
 Lester P. Wiggins, B.S., A. and T. College .....1950

**MASTER OF SCIENCE IN EDUCATION**

Flonnie Thomas Anderson, A.B., West Virginia State College .....1949  
 Edward Adam Angel, B.S., West Liberty State College .....1962  
 Archibald Lumpkin Banks, B.S., Johnson C. Smith University .....1952  
 Rosalie McKay Beattie, B.S., A. and T. College .....1942  
 Ethel Magnolia Bigby, A.B., Benedict College .....1947  
 John Black, Jr., B.S., A. and T. College .....1955  
 Thelma Rountree Boney, B.S., Winston-Salem State College .....1954  
 Wilmer Ross Boone, B.S., A. and T. College .....1965  
 Dorislene Dew Bowens, B.S., A. and T. College .....1958  
 Bernard Cortez Brinkley, B.S., North Carolina College .....1951

Evelyn Wagner Cabbell, B.S., Hampton Institute .....	1947
Clarice Graham Carter, B.S., Winston-Salem State College .....	1955
Jessie Savage Charles, B.S., Shaw University .....	1959
Barbara Jean Coffey, A.B., Shaw University .....	1960
Bernice Alston Doggett, B.S., A. and T. College .....	1952
Elnora Bennett Draughn, B.S., Fayetteville State College .....	1948
Walter Lee Faison, B.S., North Carolina College .....	1956
Allan Eugene Foote, B.S., Wisconsin State University—Superior ....	1963
Margaret Turner Gillis, B.S., Winston-Salem State College .....	1948
Etta Christine Leath Gravely, B.S., Howard University .....	1960
Catherine Moye Green, B.A., St. Augustine's College .....	1956
Edna Johnson Hall, A.B., Benedict College .....	1957
Yvonne Ireland Hankins, B.A., Bennett College .....	1955
Alfred Wilson Harris, B.S., Livingstone College .....	1957
John Delma Henry, B.S., A. and T. College .....	1945
Cordelia Barnett Hinnant, B.A., Bennett College .....	1948
Ann Farmer Hollingsworth, A.B., Shaw University .....	1953
Thellena Dalton Horne, B.S., Winston-Salem State College .....	1943
Bobby Ray Johnson, B.S., A. and T. College .....	1959
Naomi Martin Jones, B.S., Fayetteville State College .....	1945
Naomi Williams Jones, B.S., Winston-Salem State College .....	1954
Virginia Sprague Ketcham, A.B., Catawba College .....	1961
Charles Grant Lambert, B.S., Concord College .....	1959
Catherine Stokes Mankin, B.S., Virginia Union University .....	1952
Samuel Edwin Massenberg, B.S., Ohio State University .....	1957
Doris Horne Miller, B.S., Barber-Scotia College .....	1959
Thelma Furches Miller, B.S., Winston-Salem State College .....	1957
Amos Thelmon Mills, B.A., St. Augustine's College .....	1936
Juanita Thomas Mints, B.S., Claflin College .....	1953
Clarence Lee Moore, Jr., B.S., A. and T. College .....	1961
Lauranette Teresa Morant, B.S., Barber-Scotia College .....	1958
Mary Elizabeth Morrison, B.S., Winston-Salem State College .....	1958
Henry Weasel Parker, B.S., A. and A. College .....	1955
Leonard Henry Patton, B.S., A. and T. College .....	1954
Lawrence Edward Payne, B.S., A. and T. College .....	1956
Martha Hart Payne, B.A., Winston-Salem State College .....	1958
James Redmond Payton, B.S., A. and T. College .....	1949
Jettie Hart Perry, B.S., Winston-Salem State College .....	1959
Lora Campbell Pettiford, B.S., Elizabeth City State College .....	1944
Muriel Walker Ramsey, A.B., Johnson C. Smith University .....	1959
Lawrence Herbert Robinson, B.S., A. and T. College .....	1960
Lucinda Marjorie Rodgers, B.S., A. and T. College .....	1963
Geraldine Spaulding Rorie, A.B., Johnson C. Smith University .....	1961
Harvey Lee Rorie, B.S., A. and T. College .....	1957
Ernest Lenwood Sanders, B.S., St. Augustine's College .....	1932
Harold Hercules Scipio, B.S., Claflin College .....	1950
Mannie Lomax Scott, B.S., A. and T. College .....	1954
Eddie Moore Simpson, B.S., A. and T. College .....	1949
Vernell Andrews Spencer, B.S., A. and T. College .....	1958



Mae Ellen Jefferson Starks, B.S., Winston-Salem State College .....	1955
Cyrus David Stuckey, A.B., Guilford College .....	1958
Milton Lee Taylor, B.S., Fayetteville State College .....	1958
Helen Louise Tucker, A.B., Benedict College .....	1955
Arthur Vines, Jr., B.S., A. and T. College .....	1956
Katherine Reverda Walker, B.S., Morris College .....	1957
Margine Clapp Watson, B.A., Bennett College .....	1953
Doretha Gaddy Williams, A.B., South Carolina State College .....	1960
Shelton Daniel Williams, B.S., A. and T. College .....	1955
Orian Jones Wilson, B.S., Winston-Salem State College .....	1954
Georgia Gerald Wright, B.S., Fayetteville State College .....	1948
Dorothy Ellis Wynecoff, A.B., Livingstone College .....	1948

### **CANDIDATES FOR COMMISSIONS AS SECOND LIEUTENANTS IN THE UNITED STATES ARMY**

#### **UNITED STATES ARMY RESERVE APPOINTMENT AND BRANCH**

##### **Cadet Commissioned July 22, 1966**

Thomas E. Grier, *Signal Corps*

##### **Cadet Commissioned January 13, 1967**

Oscar C. Gatewood, *Intelligence*

#### **REGULAR ARMY APPOINTMENT AND BRANCH**

##### **Cadets Commissioned January 30, 1967**

\*Tyrone Russell, *Infantry*

\*Eric R. Teel, *Intelligence*

##### **Cadets Commissioned June 4, 1967**

\*Linwood E. Burney, *Infantry*

\*John Craig, *Armor*

\*Winston S. Leonard, *Armor*

\*Joseph J. Mooney, Jr., *Quartermaster*

#### **UNITED STATES ARMY RESERVE APPOINTMENT AND BRANCH**

James D. Allen, *Quartermaster*

Stephen E. Bernard, *Infantry*

John M. Gundy, *Infantry*

Richard B. Jackson, *Corps of Engineers*

\*General T. Little, *Medical Service Corps*

William Magee, *Medical Service Corps*

Shedrick E. Williams, Jr., *Quartermaster*

Fred S. Wood, Jr., *Signal Corps*

---

\*Distinguished Military Graduates

# **CANDIDATES FOR COMMISSION AS SECOND LIEUTENANTS IN THE UNITED STATES AIR FORCE**

## **Cadet Commissioned June 24, 1966**

Bruce M. Bullock, *Pilot*

## **Cadets Commissioned August 12, 1966**

Charles E. Butler, *Pilot*

Larry T. Hardy, Jr., *Mathematics*

\*John A. Smith, *Pilot*

David Solomon, *Pilot*

James E. White, *Pilot*

## **Cadet Commissioned August 22, 1966**

Joseph L. Johnson, *Personnel*

## **Cadet Commissioned September 8, 1966**

Harvey B. Corbett, *Biology*

## **Cadets Commissioned January 28, 1967**

Bobby R. Evans, *Mathematics*

Richard J. Peace, *Personnel*

Larry Roberson, *Pilot*

## **Cadet Commissioned February 11, 1967**

\*Arnie Bass, *Pilot*

## **Cadets Commissioned June 4, 1967**

\*George Board, III, *Pilot*

William M. Brown, *Pilot*

Willie R. Bunch, *Education*

\*Eugene L. Feimster, *Meteorology*

\*Edward Garner, Jr., *Pilot*

Carle Hall, *Biology*

Dratin Hill, Jr., *Electronic Data  
Processing*

John R. Hines, *Electronic Data  
Processing*

John H. Hughley, *Information*

Ira T. Joyner, Jr., *Chemistry*

James A. Madison, Jr., *Chemistry*

Robert L. Parker, *Pilot*

James E. Payne, Jr., *Mechanical  
Engineering*

Fred D. Taylor, *Navigation*

\*Roy C. White, *Electronic Data  
Processing*

Wayne G. Woods, *Biology*

PRIZES AND AWARDS





## PRIZES AND AWARDS

Five Alumni Scholarships of \$1600 each were awarded by the A. and T. College Alumni Association to five high school seniors who ranked high on the College Entrance Psychological Test given by the Association through its testing program.

The Hamilton Gold Watch presented by Hamilton Watch Company to the graduate in Engineering who has most successfully combined proficiency in his major field of study with notable achievements in the Social Sciences and Humanities.

Johnnie Richardson

Donald E. Robinson Memorial Scholarships—Three scholarships, one for \$1000 and two for \$500, each year for four years, and awarded to deserving graduates of the Burlington, N. C., Jordan Sellars High School.

The scholarships are named in honor of the late Dr. Donald E. Robinson, a pioneer pediatrician in Burlington, who began practice in the city in 1929 as its first pediatrician and gave devotedly of his talent and energies to the health of babies and children in the community until his passing in 1959.

The recipients are:

Eula D. Foust	\$1,000 each year for four years
Brenda F. Warren	\$ 500 each year for four years
Carson White	\$ 500 each year for four years

The Elihue A. Barden Award to the Mechanical Engineering student in the junior class, maintaining the highest scholastic average and who exemplifies high moral character. This award was established by his widow.

Leonard L. Smith

The Merrick Medal Award to the graduating senior for all-round excellence in Industrial Arts.

Fred Wood

The Saslow's, Incorporated, Medal Awarded to the graduating senior with the best record in the Social Sciences.

Linwood E. Burney

The Saslow's, Incorporated, Medal Awarded to the graduating senior with the best record in the School of Education and General Studies.

Diane Banner

The L. Richardson Hospital Auxiliary Award to the most promising graduate in the School of Nursing.

Willie Pearl Washington



The Band Awards for Four Years of Meritorious Service in the College Band.

Ray English  
William G. Thompson  
Chauncey Walker

Recipients of Awards for Four Years of Meritorious Service in the College Choir.

Charles Bullock	Vincent Spencer
Robert Powell	Sandra Spruiell
Marcia Nunn	

Recipients of Awards for Three Years of Meritorious Service in the College Choir.

May Alston	Claudia Foster
Thomas Brewer	Walter Gill
Shirley Debose	Beborah Greene
Georgia Gaylor	Vincent Knight
Pearline Harris	Robert Thomas
Willie McGriff	Larry Waddell
James Chestnut	

Recipients of Awards for Three Years of Meritorious Service in the A. and T. State University Male Singers.

John Harrington	George Saunders
Rogers Thomas	Robert Thomas

Certificates of Merit for Service in the James B. Dudley Chapter of the Student National Education Association.

Eula Battle	Jonathan Byers
Diane Banner	Margaret Price
Isaac Burnett	Turner Rice

Awards for Meritorious Service with the Richard B. Harrison Players.

Roland Haynes

Best Actor—National Association of Dramatic & Speech Arts Play Festival—"The Zoo Story" by Edward Albu 1966

Best Actor—Richard B. Harrison Players 1965

*A Raisin in the Sun* by Lorraine Hansberry  
Nathaniel Rorie

Best Actor—Richard B. Harrison Players 1967

*Inherit the Wind* by Lawrence & Lee  
Wanda Finley

Best Actress—*Inherit the Wind* 1967

*God's Trombones* by James Weldon Johnson  
Virginia Allen



Best Supporting Actress 1967—*Inherit the Wind*

LeRoy Gaither

Best Supporting Actor 1967—*Inherit the Wind*  
*God's Trombones*

GATE CITY CHAPTER SCHOLARSHIP AWARD TO A GRADUATING HIGH SCHOOL SENIOR IN THE GATE CITY AREA WHO HAS BEEN ADMITTED TO THE COLLEGE FOR 1967—Janice Yvonne Ingram, Senior, Dudley High School, Greensboro, N. C.

GATE CITY CHAPTER SCHOLARSHIP AWARD TO THE OUTSTANDING ATHLETE FROM THE GATE CITY AREA—Hillis Haygood, Sophomore, presently enrolled.

The ROTC Certificate of Meritorious Leadership Achievement is awarded to the Distinguished Military Graduate who most clearly displays the greatest leadership potential of any of his contemporaries.

Linwood E. Burney

The Philadelphia Chapter, Alumni Association Trophy Award to the most Outstanding Athlete of the year.

Theodore Campbell

National Scholastic Press Association Awards for high journalistic achievement.

Eula M. Battle

THE STAR—for one year as Editor-in-Chief of the A. & T. State University REGISTER, a weekly publication, with honor rating in the National Newspaper Critical Service of The Associated Collegiate Press.

Eula M. Battle

THE JOURNEYMAN—for two or more years of meritorious service to THE REGISTER.

Diane Banner

Stanley W. Johnson

THE CUB—for one or more terms of service to THE REGISTER.

William Adams

Patricia Lanier

Thomas Allen

Willie Mae Leach

Ronald Boyd

Gracie L. Mebane

Doris Curtis

Richard Newkirk

Gloria Diggs

Clarence Page

Dennis Fairley

DaRenne Pazant

Earnest Fulton

Ida V. Sellers

Brenda Gibbs

Kermit Somerville

Clayton Holloway

William Tatum

Lee A. House, Jr.

Nancy Waddell

Jessie Lanier

THE IRVING-SWAIN PRESS Award—\$25.00 Savings Bond—for the greatest contribution to the success of THE REGISTER.

Stanley W. Johnson

THE PAUL V. JEWELL JOURNALISM Award—two \$25.00 Savings Bonds presented by Tommy C. Gaddie, Editor 1961-63—to REGISTER staff members (engineering majors), selected by faculty adviser, for meritorious service to THE REGISTER.

No Recipient

Economics Faculty Award—\$25 to the Junior with the highest average in Economics having completed a minimum of 15 hours.

Franklin E. Richmond

**GRADUATING SENIORS HOLDING MEMBERSHIPS IN  
SCHOLASTIC AND SCIENTIFIC HONOR SOCIETIES  
ALPHA KAPPA MU HONOR SOCIETY**

Diane Banner  
Linwood E. Burney  
Nannie Kearney

Earlene Oates  
Willie P. Washington

**LAMBDA IOTA TAU NATIONAL HONORARY SOCIETY**

Diane Banner

Patricia Lanier

**OMICRON DELTA EPSILON HONOR SOCIETY**

John Gundy  
Thelma Robinson O'Neal

Joyce Gadson Parker  
Roy C. White

## ENROLLMENT BY COUNTIES IN NORTH CAROLINA 1967-1968

Alamance .....	53	Lee .....	17
Alexander .....	1	Lenoir .....	32
Anson .....	19	Lincoln .....	8
Beaufort .....	42	McDowell .....	4
Pertie .....	15	Martin .....	21
Fladen .....	26	Mecklenburg .....	96
Brunswick .....	25	Montgomery .....	12
Buncombe .....	25	Moore .....	11
Burke .....	9	Nash .....	13
Cabarrus .....	26	New Hanover .....	54
Caldwell .....	9	Northampton .....	39
Carteret .....	9	Onslow .....	12
Caswell .....	20	Orange .....	23
Catawba .....	20	Pamlico .....	3
Chatham .....	24	Pasquotank .....	17
Chowan .....	8	Pender .....	15
Cleveland .....	36	Perquimans .....	23
Columbus .....	37	Person .....	22
Craven .....	33	Pitt .....	77
Cumberland .....	71	Polk .....	1
Currituck .....	1	Randolph .....	18
Davidson .....	15	Richmond .....	34
Davie .....	4	Robeson .....	42
Duplin .....	34	Rockingham .....	74
Durham .....	78	Rowan .....	25
Edgecombe .....	63	Rutherford .....	10
Forsyth .....	189	Sampson .....	55
Franklin .....	11	Scotland .....	23
Gaston .....	36	Stanly .....	12
Gates .....	6	Stokes .....	10
Granville .....	16	Surry .....	7
Greene .....	13	Swain .....	0
GUILFORD .....	653	Tyrrell .....	7
Halifax .....	36	Union .....	17
Harnett .....	20	Vance .....	20
Haywood .....	8	Wake .....	96
Henderson .....	2	Warren .....	24
Hertford .....	28	Washington .....	13
Hoke .....	9	Wayne .....	70
Hyde .....	7	Wilkes .....	7
Iredell .....	13	Wilson .....	46
Johnston .....	23		
Jones .....	23		
		TOTAL .....	2906

## ENROLLMENT BY STATES 1967-1968

Alabama .....	11	New York .....	117
California .....	2	NORTH CAROLINA .....	2906
Colorado .....	3	North Dakota .....	1
Connecticut .....	19	Ohio .....	8
Delaware .....	3	Pennsylvania .....	52
District of Columbia .....	99	Rhode Island .....	5
Florida .....	52	South Carolina .....	176
Georgia .....	60	Tennessee .....	6
Illinois .....	7	Texas .....	1
Indiana .....	5	Virginia .....	239
Kansas .....	1	West Virginia .....	5
Kentucky .....	1	TERRITORIES .....	2
Maine .....	2	Africa .....	10
Maryland .....	14	China .....	1
Massachusetts .....	8	India .....	3
Michigan .....	4	Iran .....	4
Mississippi .....	1	West Indies .....	7
New Hampshire .....	1		
New Jersey .....	94	TOTAL .....	3930

## SUMMARY OF ENROLLMENT 1967-1968

Fifth Year (A. E. only) ....	10	Sophomore Class .....	1052
Senior Class .....	848	Freshman Class .....	972
Junior Class .....	858	Graduate Students .....	190
			<hr/>
		TOTAL .....	3930

Total Enrollment, Excluding duplicates, regular	
session 1967-68 .....	3930
Summer Session, Undergraduates, 1967 .....	1083
Summer Session, Graduate, 1967 .....	891
	<hr/>
GRAND TOTAL 1967-68 .....	5904

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